

## ZMLUVA O POSKYTOVANÍ ELEKTRONICKÝCH KOMUNIKAČNÝCH SLUŽIEB

uzavretá v zmysle § 269 ods. 2 zák. č. 513/1991 Zb. Obchodný zákonník v platnom znení

### Zmluvné strany

<b>Účastník:</b>	<b>Úrad pre verejné obstarávanie</b>
Adresa / Sídlo:	Dunajská 68, 820 04 Bratislava 24
Zastúpený:	Ing. Béla Angyal, predseda Úradu pre verejné obstarávanie
Bank.spojenie:	Štátna pokladnica, účet č. 70000062756 / 8180
IČO:	31797903
<b>Prevádzkovateľ:</b>	<b>SWAN, a.s.</b>
Sídlo:	Borská 6, 841 04 Bratislava
Zastúpený:	Ing. Juraj Ondriš, predseda predstavenstva Ing. Miroslav Strečanský, člen predstavenstva
Bank.spojenie:	Tatrabanka, číslo účtu : 2620726338/1100
IČO:	35 680 202
IČ DPH	SK2020324317
Výpis z obchod. registra:	OR Okresný súd Bratislava I – odd. Sa, vložka č.2958/B

### Čl.1 Predmet zmluvy

- a) Predmetom tejto zmluvy je záväzok prevádzkovateľa zriadiť a prevádzkovať službu serverhostingu serverov pre Elektronické verejné obstarávanie (ďalej len „EVO“) podľa špecifikácie uvedenej v prílohe č. 5 (ďalej len „Služba“). Služba neobsahuje pripojenie do Internetu a prepojenie s IP VPN sieťou - Govnet.
- b) Zriadenie Služby je realizované na základe jednotlivých objednávok účastníka (vzor objednávky tvorí prílohu č. 1 k tejto zmluve). Služba sa považuje za zriadenú a funkčnú po protokolárnom prevzatí. Vzor odovzdávacieho protokolu je uvedený v prílohe č. 2.
- c) Miesto poskytovania Služby a organizačné opatrenia sú určené v prílohe č. 4.
- d) Služby poskytované na základe tejto zmluvy sú poskytované nepretržite (24 x 7).

### Čl.2 Povinnosti zmluvných strán

- a) Účastník a prevádzkovateľ určia listinnou formou poverených pracovníkov podľa prílohy č. 4, ktorí budú mať právo vstupu do vyhradených priestorov miesta poskytovania Služby.
- b) Účastník určí listinnou formou zodpovednú osobu pre prevádzkovateľa podľa prílohy č. 4. Zodpovedná osoba bude mať ako jediná právo prevádzkovateľa požiadať o audit, zmenu nastavení a parametrov poskytovanej Služby podľa prílohy č. 1.
- c) Účastník je povinný do 14 dní po podpísaní tejto zmluvy prevádzkovateľovi odovzdať kompletne vyplnené objednávky (podľa vzoru uvedeného v prílohe č. 1).
- d) Účastník sa zaväzuje počas platnosti tejto zmluvy neznižovať pre prípojné body technické parametre Služby. Zmena technických parametrov Služby je dovolená na základe dohody zmluvných strán písomne zaznamenananej v dodatku k tejto zmluve.
- e) Účastník súhlasí s umiestnením technologických zariadení v mieste poskytovania Služby určenom prevádzkovateľom.
- f) Účastník sa zaväzuje oznámiť všetky ďalšie údaje a skutočnosti v rámci svojich vedomostí a svojej moci, ktoré sú potrebné na úspešné plnenie zmluvných skutočností, tak aby mohol byť naplnený predmet zmluvy v dohodnutom termíne.
- g) Všetky technologické zariadenia poskytnuté účastníkovi v rámci Služby zostávajú vo vlastníctve prevádzkovateľa okrem zariadení uvedených v prílohe 5A, 5B a 5C, ktorých vlastníkom sa účastník stáva pri podpise tejto zmluvy (resp. pri akceptácii odovzdávacieho protokolu za jednotlivé zariadenia).
- h) Prevádzkovateľ sa zaväzuje, že bez písomného súhlasu účastníka nebude zariadenie poskytnuté v rámci Služby účastníkom ani treťou stranou premiestňované, deinštalované a inak s ním manipulované.
- i) Technologické zariadenie, poskytnuté v rámci predmetu zmluvy, musí byť trvale zapnuté. Zabezpečenie nepretržitého elektrického napájania je vecou prevádzkovateľa a nie je dovolené so zariadením

- akýmkoľvek spôsobom manipulovať, zasahovať a meniť nastavené hodnoty bez predchádzajúceho súhlasu účastníka.
- j) Prevádzkovateľ sa zaväzuje spolupracovať s účastníkom pri plnení predmetu zmluvy, vrátane zabezpečenia prístupu pracovníkov účastníka alebo jeho dodávateľov..
  - k) Prevádzkovateľ sa zaväzuje pri zabezpečovaní predmetu zmluvy hlavne:
    - dodržiavať všetky technické normy a parametre poskytovaných Služby
    - dodržiavať bezpečnosť a držať v tajnosti všetky technické parametre nastavení
    - nemeniť bezdôvodne technické parametre a uskutočňovať ich v súlade so záujmom účastníka na základe jeho písomnej požiadavky
    - nevyvíjať činnosti, ktoré by porušovali dobré mravy a zásady obchodného vzťahu
  - l) Prevádzkovateľ sa zaväzuje vopred oznámiť účastníkovi každú zmenu technických parametrov a po realizácii odovzdať účastníkovi odovzdávací protokol, kde sú vykonané zmeny zaznamenané spolu s dátumom realizácie.
  - m) Prevádzkovateľ sa zaväzuje informovať o plánovaných výpadkoch z dôvodu údržby vždy vopred a je povinný uskutočniť tak najmenej 3 pracovné dni vopred a to listinnou formou (faxom, prípadne e-mailom) pracovníkom, ktorých určí účastník.

### Čl.3 Cena a platobné podmienky

- a) Cena za Službu špecifikovanú v predmete zmluvy je stanovená dohodou v zmysle zákona o cenách nasledovne:

Služba	Zriaďovací poplatok	Mesačný poplatok
Serverhosting ostrého servera EVO 2 x 1 GBit/s	0,- Sk	55 930,- Sk
Serverhosting školiaceho servera EVO 2 x 1 GBit/ s	0,- Sk	21 658,- Sk
IDS/ IPS (IPS zariadenie, PC for monitoring)	362 652,- Sk	
Firewall apliancia	167 790,- Sk	
Switch Cisco	31 535,- Sk	
Práce (inštalačné práce a poplatok za správu a security dohľad)	102 340,- Sk	60 214,- Sk
UPS - správu a údržbu	150 237,- Sk	14 161,- Sk
Elektrická energia 3 x 2 x 230V	0,- Sk	Suma podľa skutočnosti
<b>SPOLU:</b>	<b>814 554,- Sk</b>	<b>151 963,- Sk</b>

- b) Ceny sú uvedené vrátane DPH, ktorá bola prípočítaná vo výške podľa platných právnych predpisov.
- c) Cenu je možné meniť len formou dodatkov k zmluve po vzájomnej dohode zmluvných strán, a na základe zmeny daňových predpisov alebo iných legislatívnych vplyvov, ktoré majú priamy vzťah k stanoveniu ceny.
- d) Pre cenu je stanovená mena – Slovenská koruna.
- e) Prevádzkovateľ je oprávnený vystaviť faktúru na jednorázové náklady – zriaďovací poplatok - ihneď po podpísaní zmluvy.
- f) Prevádzkovateľ je oprávnený vystaviť faktúru za mesačný poplatok za poskytnutú Službu k prvému dňu mesiaca, ktorý nasleduje po mesiaci v ktorom bola služba poskytnutá.
- g) Lehota splatnosti faktúr je 14 dní odo dňa doručenia účastníkovi.
- h) Faktúra musí mať všetky náležitosti daňového dokladu stanovené príslušnou platnou legislatívou. V prípade, že faktúra nebude obsahovať predpísané náležitosti daňového dokladu, resp. budú v nej uvedené nesprávne alebo neúplné údaje, vráti účastník faktúru prevádzkovateľovi, ktorý je povinný faktúru upraviť resp. doplniť. U takto upravenej resp. doplnenej faktúry prevádzkovateľ vyznačí novú lehotu splatnosti.
- i) Zmluvné strany sa dohodli, že mesačný poplatok vo výške 21 658,- Sk za službu „Serverhosting školiaceho servera EVO 2 x1 GBit/s“ sa nebude fakturovať za mesiac február 2007 a mesačný poplatok spolu za mesiac február 2007 bude o túto sumu znížený.
- j) Zmluvné strany sa dohodli, že výška úroku z omeškania za nedodržanie termínu splatnosti faktúry pre účastníka je 0,05% z dlžnej čiastky za každý deň omeškania maximálne však do výšky 100.000,- Sk bez DPH.
- k) Zmluvné strany sa dohodli, že zmluvná pokuta z omeškania za nedodržanie termínu zriadenia služby na objednávke podľa prílohy č. 1 pre prevádzkovateľa je 0,05% z ceny zriaďovacieho poplatku za každý deň omeškania maximálne však do výšky 100.000,- Sk bez DPH. Prevádzkovateľ sa ďalej zaväzuje, že v prípade porušenia akejkolvek inej zmluvnej povinnosti uhradí účastníkovi zmluvnú pokutu vo výške 0,05 % zo zriaďovacieho poplatku za každý deň, v ktorom prevádzkovateľ neodstráni (nenapraví) porušenie zmluvnej povinnosti.

## Čl.4 Doba trvania zmluvy

- a) Zmluva sa uzatvára na dobu určitú, a to do 31. 12. 2007.
- b) Platnosť tejto zmluvy je možné ukončiť:
  - i. dohodou zmluvných strán v písomnej forme,
  - ii. uplynutím doby podľa písm. a) tohto článku,
  - iii. odstúpením od tejto zmluvy podľa príslušných ustanovení Všeobecných podmienok na poskytovanie služby prístupu do siete internet spoločnosti SWAN, a.s.. (príloha č. 7)
- c) V prípade, ak účastník vykoná právny úkon smerujúci k ukončeniu platnosti tejto zmluvy, ktorý je v rozpore s ustanoveniami tejto zmluvy a prestane plniť povinnosti vyplývajúce mu z ustanovení tejto zmluvy, má prevádzkovateľ nárok na zaplatenie zmluvnej pokuty vo výške sumy, ktorá sa určuje nasledujúcim spôsobom: celkový mesačný poplatok za služby vynásobený počtom mesiacov, ktoré zostávajú do konca doby určenej podľa písm. a) tohto článku tejto zmluvy; pričom nárok na náhradu škody prevádzkovateľovi tým nie je dotknutý. Prevádzkovateľ je oprávnený zmluvnú pokutu vyúčtovať sankčnou faktúrou k prvému dňu mesiaca nasledujúceho po mesiaci, v ktorom účastník vykonal právny úkon smerujúci k ukončeniu platnosti tejto zmluvy, ktorý je v rozpore s ustanoveniami tejto zmluvy. Splatnosť sankčnej faktúry je 30 dní od doručenia faktúry účastníkovi.
- d) Ak prevádzkovateľ vykoná právny úkon smerujúci k ukončeniu platnosti tejto zmluvy, ktorý je v rozpore s ustanoveniami tejto zmluvy a prestane plniť povinnosti vyplývajúce z jej ustanovení, má účastník nárok na zaplatenie zmluvnej pokuty vo výške 100.000,- Sk bez DPH. Účastník je oprávnený zmluvnú pokutu vyúčtovať sankčnou pokutou k prvému dňu mesiaca nasledujúceho po mesiaci, v ktorom prevádzkovateľ vykonal právny úkon smerujúci k ukončeniu platnosti tejto zmluvy, ktorý je v rozpore s ustanoveniami tejto zmluvy. Splatnosť sankčnej faktúry je 30 dní od doručenia faktúry prevádzkovateľovi.

## Čl.5 Servis a garancie

- a) Prevádzkovateľ zabezpečuje odstraňovanie prípadných porúch Služby, ktoré boli zistené dohľadovým strediskom prevádzkovateľa alebo oznámené účastníkom a overené dohľadovým strediskom prevádzkovateľa (podľa toho, čo nastane skôr) takto:
  - odstránenie porúch najneskôr do 24 hodín od nahlásenia porúch na Helpdesk podľa bodu g).
- b) Prevádzkovateľ má právo dočasne prerušiť poskytovanie telekomunikačných služieb z dôvodu odstraňovania porúch, pričom vždy zohľadní záujmy účastníka a obmedzí prerušenie prevádzky na najkratší nevyhnutný čas.
- c) Prevádzkovateľ ohlásí účastníkovi neočakávané prerušenie prevádzkovej Služby.
- d) Doba určená pre plánovanú údržbu je doba nepresahujúca 120 minút za kalendárny mesiac, počas ktorej môže byť poskytovanie Služby prerušené. Pre plánovanú údržbu je vyhradený pevný termín každý prvý štvrtok v mesiaci v čase medzi 2.00 – 3.00. Celková doba údržby nesmie presiahnuť 8 hodín počas jedného kalendárneho roku.
- e) Plánovaná údržba sa oznamuje druhej zmluvnej strane emailom, alebo faxom najneskôr 3 pracovné dni vopred.
- f) V prípade, že účastník neumožní druhej strane uskutočniť okamžitý servisný zásah na zariadeniach umiestnených v jeho priestoroch, nebude táto doba započítaná do celkovej lehoty opravy.
- g) Miesto ohlasovania porúch je Helpdesk prevádzkovateľa (tel. číslo 02 – 35 000 999, [helpdesk@swan.sk](mailto:helpdesk@swan.sk)).
- h) Dostupnosť služby je garantovaná v rozsahu 97%.
- i) Prevádzkovateľ poskytuje QoS v zmysle „Poriadku a kvality poskytovanej IP služby“, ktorý tvorí prílohu č. 3 k tejto zmluve.

## Čl.6 Záverečné a spoločné ustanovenia

- a) Táto zmluva je vyhotovená v štyroch origináloch, z ktorých každá zmluvná strana obdrží po dve vyhotovenia.
- b) Právne vzťahy zmluvných strán založené touto zmluvou a touto zmluvou výslovne neupravené sa riadia príslušnými ustanoveniami Obchodného zákonníka a ostatných platných právnych predpisov Slovenskej republiky..
- c) Túto zmluvu je možné meniť a dopĺňať len písomnými dodatkami, ktoré budú podpísané každou zo zmluvných strán. Každý uzatvorený dodatok musí obsahovať evidenčné číslo zmluvy.
- d) Všetky údaje ktoré obsahuje táto zmluva sa považujú za predmet obchodného tajomstva. Zmluvné strany považujú informácie, s ktorými prídu do styku pri plnení predmetu tejto zmluvy za predmet obchodného tajomstva, zaväzujú sa neposkytovať ich tretím osobám a nezneužívať ich. Poskytnúť tieto údaje resp. informácie tretej osobe môže zmluvná strana len po predchádzajúcom písomnom súhlase druhej zmluvnej strany. Tento záväzok mlčanlivosti platí aj po ukončení tohto zmluvného vzťahu.
- e) Účastník umožní prevádzkovateľovi používať jeho meno ako referenciu prevádzkovateľa pre zabezpečovanie telekomunikačných potrieb pre účastníka a súhlasí s tým. Prevádzkovateľ súhlasí s použitím jeho mena pri poskytovaní informácie zo strany účastníka ako prevádzkovateľa telekomunikačných služieb a súhlasí s tým.



- f) Oznámenia, alebo zasielanie dokumentov sa uskutočňuje na adresách:
- Prevádzkovateľ: SWAN, a.s., Borská 6, 841 04 Bratislava
  - Účastník: Úrad pre verejné obstarávanie, Dunajská 68, P. O. Box 58, 820 04 Bratislava 24
- h) Zmluvné strany súhlasia s používaním faxu pre urýchlenie písomnej komunikácie s tým, že každá strana je povinná zaistiť riadnu evidenciu a archiváciu na médiu necitlivom na svetlo. Dátum a čas uvedený v týchto dokumentoch sa považuje za rozhodujúci pri určovaní a počítaní lehôt a termínov.
- Fax prevádzkovateľa: 02 – 35 000 799
  - Fax účastníka:
- Uvedené neplatí pre faktúry a preberacie protokoly, ktoré musia byť zasielané na adresu účastníka v listinnej podobe.
- h) Zmluvné strany môžu meniť adresy a faxové čísla sú však povinné o príslušných zmenách druhú stranu bezodkladne informovať.
- i) V prípade rozporu zmluvných podmienok uvedených v tejto zmluve s podmienkami uvedenými vo Všeobecných podmienkach na poskytovanie služby prístupu do siete internet spoločnosti SWAN, a.s., majú podmienky uvedené v tejto zmluve prednosť.
- j) Žiadna zo zmluvných strán nie je zodpovedná za nedodržanie zmluvných ustanovení, alebo za omeškanie spôsobené pri plnení jej povinností z dôvodu vyššej moci v zmysle platného Obchodného zákonníka. V prípade, že do plnenia zmluvy zasiahne vyššia moc, predlžujú sa termíny plnenia jednotlivých bodov zmluvy o tú dobu, po ktorú táto vyššia moc trvala.
- k) Nedeliteľnými prílohami tejto zmluvy sú:
- príloha č. 1 – Vzor objednávky doplnkových služieb,
  - príloha č. 2 – Vzor odovzdávacieho protokolu zriadenia dátovej služby,
  - príloha č. 3 – Poriadok a kvalita poskytovanej IP služby,
  - príloha č. 4 – Organizačné opatrenia
  - príloha č. 5 – Špecifikácia zariadení pre serverhosting servrov pre Elektronické verejné obstarávanie (prílohy 5A, 5B, 5C a 5D)
  - príloha č. 6 - výpis z obchodného registra Okresného súdu Bratislava I oddiel: Sa, vložka č.: 2958/B.
  - príloha č. 7 - Všeobecné podmienky na poskytovanie služby prístupu do siete internet spoločnosti SWAN, a.s..
- l) Táto zmluva nadobúda platnosť a účinnosť dňom podpísania každou zo zmluvných strán. Každá zo zmluvných strán zmluve rozumie a podpisuje na základe slobodnej vôle bez nátlakov. Súhlas s celým textom zmluvy potvrdzujú zmluvné strany podpisom svojich oprávnených zástupcov.

V Bratislave, dňa 30.1.2007

V Bratislave, dňa 30.1.2007

Za prevádzkovateľa:

Za účastníka:

.....  
Ing. Juraj Ondriš  
predseda predsta

.....  
Ing. Béla Angyal  
predseda Úradu pre verejné obstarávanie

.....  
Ing. Miroslav Strečanský  
člen predstavenstva  
SWAN, a.s.

**SWAN****Príloha č. 1**

k Zmluve o poskytovanie elektronických komunikačných služieb

**OBJEDNÁVKA DOPLNKOVÝCH SLUŽIEB** zriadenie  zrušenie  zmena

Evidenčné číslo Zmluvy:

Požadovaný dátum zriadenia:

Na obdobie:  neurčité 12 mesiacov

ÚČASTNÍK (skráteneý názov):

Obchodné meno (alebo priezvisko, meno, titul):

 právnická osoba fyzická osoba – podnikateľ fyzická osoba

IČO (číslo OP):

DIČ:

IČ DPH:

Ulica:

Orient. č.:

Obec (sídlo):

PSČ:

Zodpovedná osoba pre veci zmluvné za účastníka (priezvisko, meno, titul):

Prac. pozícia:

Telefón:

Fax:

Mobil:

E-mail:

Kontaktná osoba pre veci technické za účastníka (priezvisko, meno titul):

Prac. pozícia:

Telefón:

Fax:

Mobil:

E-mail:

Korešpondenčná adresa (vyplňuje sa len v prípade ak je iná ako adresa užívateľa, resp. užívateľ využíva P.O. BOX):

Obchodné meno (alebo priezvisko, meno, titul):

Ulica (P.O.Box):

Orient. č.:

Obec (sídlo):

PSČ:

DOPLNKOVÉ SLUŽBY

 v rámci pripojenia nad rámec pripojenia

ŠTART (pripojenie do Internetu komutovanou linkou dial-up/ ISDN):

 x 89,- Sk/mes x 960,- Sk/rok x 100,- Sk/mes x 1080,- Sk/rok

IP FIX (pevná IP adresa):

E-MAIL ONE (10MB, +2 alias):

E-MAIL ONE (10MB, +2 alias):

E-MAIL ONE (10MB, +2 alias):

E-MAIL ONE (10MB, +2 alias):

E-MAIL ONE (10MB, +2 alias):

E-MAIL ONE CENA SPOLU:  x 20,- Sk/mes x 216,- Sk/rok

Registrácia domény druhej úrovne:

1.

2.

x 800,- Sk/rok

Preregistrácia domény druhej úrovne:

1.

2.

x 300,- Sk

WEB HOST

10 MB  300,- Sk/mes  3240,- Sk/rok50 MB  500,- Sk/mes  5400,- Sk/rok100 MB  750,- Sk/mes  8100,- Sk/rok

WEB HOST PLUS\*

10 MB  150,- Sk/mes  1620,- Sk/rok50 MB  300,- Sk/mes  3240,- Sk/rok100 MB  500,- Sk/mes  5400,- Sk/rok

MAIL HOST

 150 Sk/mes 1620 Sk/rok

Doménový kôš

 200 Sk/mes 2160 Sk/rok

IPSec account

 zriaďovací poplatok: x 1000,-Sk mesačný poplatok: x 500,-Sk

Iné:

\*WEB HOST PLUS je zvýhodnená cena za webhosting určená pre účastníkov využívajúcich dátové služby SWAN, a.s.

CENA SPOLU (Sk bez DPH)

Jednorazový poplatok:

Mesačný poplatok:

Ročný poplatok:

Dátum:

Dátum:

Dátum:

Meno a priezv.:

Meno a priezv.:

Meno a priezv.:

podpis a pečaťka účastníka

podpis a pečaťka obchodného zástupcu

podpis a pečaťka prevádzkovateľa

## Príloha č. 2

k Zmluve o poskytovaní elektronických komunikačných služieb



SWAN, a. s. • Borská 6 • 841 04 Bratislava • IČO: 35 680 202 • IČ DPH: SK2020324317  
OR Okresný súd Bratislava I – vl. č. 2958/B

# ODOVZDÁVACÍ PROTOKOL

*zriadenia dátovej služby*

Účastník (objednávateľ):		
Účastník (v mieste pripojenia):		
Objednávka č.:		
Poskytované služby:		
<input type="checkbox"/> Prístup do Internetu	Prístupová rýchlosť:	---
	IP adresy:	---
<input type="checkbox"/> Prístup do VPN MPLS	Prístupová rýchlosť:	---
<input type="checkbox"/> DSL-to-VPN MPLS	Prístupová rýchlosť:	---
<input type="checkbox"/> ISDN Back-up	<input type="checkbox"/> VPN	
	<input type="checkbox"/> Internetu	
<input type="checkbox"/> DSL Back-up	Prístupová rýchlosť:	---
	<input type="checkbox"/> VPN	
	<input type="checkbox"/> Internetu	
<input type="checkbox"/> IPSec-to-MPLS	Počet kônt:	---
<input type="checkbox"/> MPLS-to-Internet		
<input type="checkbox"/> Iné		
Rozhranie u účastníka:		
Potvrdenie prevzatia poskytovanej služby:		
Dátum:		
Zástupca poskytovateľa:	Zástupca účastníka (objednávateľa):	
Podpis:	Podpis:	
Pečiatka	Pečiatka	
Využívanie koncových telekomunikačných zariadení a služieb poskytovaných prostredníctvom nich je viazané Všeobecnými podmienkami poskytovania telekomunikačných služieb SWAN, a. s.		
Poznámka:		

# Príloha č. 3

## PORIADOK A KVALITA POSKYTOVANIA IP SLUŽBY - SLA IP

### Čl. 1 Vymedzenie pojmov

- „Chrbticová sieť“ je infraštruktúra zabezpečujúca smerovanie IP paketov pozostávajúca výlučne z vybraných uzlov siete v ktorých má SWAN nainštalované zariadenia na meranie parametrov siete. Súčasťou chrbticovej siete sú aj prepoje medzi týmito uzlami.
- „Výpadok siete“ je situácia v ktorej uzol cez ktorý je Účastník pripojený nemôže z chrbticovej siete prijímať alebo do nej posilať pakety po dobu nepretržitých 15 minút.
- „Stratovosť“ je priemerný počet paketov (vyjadrený v percentách) posianých medzi dvoma uzlami siete počas jedného mesiaca, ktoré podľa merania SWANu neboli úspešne doručené.
- „Dostupnosť služby“ je garantovaná dostupnosť vyjadrená ako podiel času, počas ktorého môže Účastník využívať službu v dohodnutom rozsahu a kvalite a Doby pokrytia v rámci sledovaného obdobia. Výsledná hodnota Dostupnosti služby je vyjadrená v percentách a zaokrúhlená na jedno desatinné miesto smerom nahor.

### Čl. 2 Určenie základných parametrov SLA

Spoločnosť SWAN poskytuje účastníkovi nasledujúce parametre a hodnoty pre poskytovanie SLA podľa nasledovnej špecifikácie:

	Stratovosť počas 95% času	Doba odstránenia poruchy (DOP)	Dostupnosť
SLA I – Premium	Max. 0.3%	6 hodiny	99%
SLA II	Max. 0.7%	12 hodín	98%
SLA III	Max. 1%	24 hodín	97%

Dostupnosť služby sa vypočíta nasledovne:

$$\text{dostupnosť služby} = \frac{(T_S - T_N)}{T_S} \times 100 \%$$

kde TS – čas prevádzky služby v mesiaci

TN – čas nedostupnosti služby v mesiaci

### Čl. 3 Meranie

Spoločnosť SWAN vykonáva na základe požiadavky Účastníka periodické merania vo vybraných uzloch siete. Merania nemusia zahŕňať všetky uzly, do ktorých je Účastník pripojený, a nemusia byť totožné s cestou ktorou pakety Účastníka prechádzajú chrbticovou sieťou. Merania sa vzťahujú iba na chrbticovú sieť SWANu a nezahŕňajú iné siete do ktorých môže byť Účastník pripojený. Spoločnosť SWAN si vyhradzuje právo zmeniť meracie body a metodológiu merania bez súhlasu Účastníka.

#### Do DOP sa nezapočítava:

- doba ohlásených plánovaných prác
- doba ohlásených neplánovaných prác
- dočasné prerušenie poskytovania služby na žiadosť Účastníka
- dočasné prerušenie poskytovania služby z dôvodu zmeny prevádzkových parametrov okruhu resp. služby na žiadosť Účastníka (zmena rýchlosti a pod.), z dôvodu prekládky jedného koncového bodu na žiadosť Účastníka a pod.
- prerušenie spôsobené Účastníkom, alebo dôvodom na strane Účastníka je najmä, ale nie len, prerušenie:

- o spôsobené nevhodným používaním zariadení SWANu zo strany objednávateľa alebo ich odpojením
- o spôsobené výpadkom elektrického napájania na strane Účastníka
- neumožnenie prístupu technických pracovníkov SWANu do priestorov, v ktorých je umiestnená infraštruktúra alebo koncový bod Účastníka
- neposkytnutie súčinnosti zo strany Účastníka pri poruche
- zapríčinené nefunkčnosťou (aj opakujúcou sa) koncových zariadení, ktoré sú majetkom Účastníka
- prerušenie z dôvodu nepredvídateľných a neodvrátiteľných udalostí (Vis Major)

#### Čl. 4 Postup pre poruchové stavy

- a) Miestom na nepretržité (24 hodín denne, 7 dní v týždni, 52 týždňov v roku) nahlasovanie porúch na poskytovaných digitálnych okruhoch je NOC SWANu (dohľadové stredisko, Helpdesk) spoločnosti SWAN:
- telefónne číslo +421 2 35 000 999
  - telefónne číslo +421 2 35 000 998
  - faxové číslo +421 2 35 000 799
  - mobil +421 908 706 819
  - e-mail helpdesk@swan.sk
- b) Nahlásenie poruchy
1. Telefónické nahlásenie poruchy do strediska NOC musí obsahovať:
    - Meno a funkciu osoby nahlásujúcej poruchu,
    - kontaktné telefónne číslo,
    - evidenčné číslo objednávky okruhu, resp. označenie digitálneho okruhu podľa protokolu o odovzdaní,
    - čas vzniku poruchy,
    - podrobný technický popis poruchy.
  2. Potvrdenie nahlásenia Poruchy listinnou formou alebo faxom bez omeškania od telefonického nahlásenia Poruchy musí podať Účastník alebo zodpovedná osoba a musí obsahovať:
    - evidenčné číslo zmluvy, objednávky okruhu, označenie okruhu podľa Odovzdávacieho protokolu,
    - dátum a čas telefonického nahlásenia Poruchy,
    - podrobný technický popis Poruchy,
    - Meno a funkciu osoby, ktorá telefonicky nahlásila poruchu.

**V prípade, že Účastník nepotvrdí písomne telefonické ohlásenie Poruchy, spoločnosť SWAN nezodpovedá za poskytnutie Servisu podľa SLA.**

- c) Ohlasovanie poruchy  
Pri nahlásení poruchy pracovník NOC SWANu otvorí ticket, pridieľ poruche evidenčné číslo a informuje o ňom Účastníka alebo Zodpovedného zástupcu Účastníka, ktorý poruchu nahlásuje. Toto evidenčné číslo sa bude používať vo všetkých ďalších kontaktoch súvisiacich s danou poruchou a bude použité pri vypracovávaní písomnej správy o poruche.
- d) Odstraňovanie poruchy  
Pracovník Účastníka sa môže priebežne telefonicky informovať o priebehu odstraňovania poruchy na NOC SWANu.  
SWAN sa zaväzuje:
- Z začať činnosti potrebné na odstránenie poruchy do 30 minút od nahlásenia poruchy.
  - Odstrániť poruchu podľa úrovne jej klasifikácie.
  - Počas diagnostikovania poruchy vynaložiť všetko úsilie na čo najskoršie obmedzenie vplyvu poruchy za účelom zabezpečenia aspoň minimálneho rozsahu digitálneho okruhu až do jeho úplného obnovenia.
- e) Odstránenie porúch  
Po odstránení poruchy NOC SWANu oznámi telefonicky odstránenie poruchy zodpovednému zástupcovi Účastníka alebo Účastníkovi.
- f) Reklamácia porúch  
Pre potreby reklamačného konania sú platné časy nahlásenia a odhlásenia poruchy na operátorovi NOC SWANu v zmysle predchádzajúcich bodov podľa záznamov v dohľadovom systéme a Ticketing systéme SWANu.



## Čl. 5 Postup pre plánované a neplánované práce

- a) V prípade plánovaného prerušenia okruhov alebo vykonávania činností, ktoré môžu viesť k ich prerušeniu, je SWAN povinný písomne oznámiť vykonávanie plánovanej práce Účastníkovi minimálne 5 (päť) pracovných dní vopred.
- e) V prípade neplánovaných prác je SWAN povinný písomne oznámiť vykonávanie neplánovanej práce Účastníkovi minimálne 3 (tri) pracovné dni vopred.
- f) Účastník je povinný príjem informácie obratom potvrdiť faxom resp. mailom na adresu [helpdesk@swan.sk](mailto:helpdesk@swan.sk) a vyjadriť sa k nej do 1 pracovného dňa.
- g) Účastník má právo žiadať zmenu času a postupu vykonania plánovanej práce, ak by zmena zmenšila dopad plánovanej práce na poskytované služby a SWAN sa zaväzuje požiadavke vyhovieť, ak to bude v jeho možnostiach.
- h) Účastník nemá právo zamedziť vykonaniu plánovanej práce.
- i) SWAN sa zaväzuje, že čas a postup plánovanej práce bude voliť tak, aby v maximálnej miere znížil dopad na poskytované služby.
- j) V prípade akejkoľvek zmeny ohlásených údajov je SWAN povinný túto zmenu prerokovať s Účastníkom rovnakým postupom, ako novú plánovanú prácu, pričom sa Účastník zaväzuje reagovať obratom, ak si to bude plánovaná práca vyžadovať.

## Čl. 6 Cena za poskytovanie SLA

- a) Zmluvné strany sa dohodli na poskytovaní služieb v úrovni **SLA vyznačenej na objednávkach služieb**.
- b) Cena za poskytovanie služieb bude v cene mesačnej ceny služieb dohodnutých v objednávkach služieb.

Ceny za poskytovanie dohodnutej úrovne SLA

Dostupnosť okruhu	Príplatok k mesačnému poplatku
SLA I	30%
SLA II	15%
SLA III	0%

## Čl. 7 Zľavy z ceny za SLA za nedodržanie dohodnutej úrovne SLA

- a) SWAN zodpovedá v rozsahu podľa tejto *Prílohy* za dodržanie hodnôt garantovaných parametrov SLA. Ak nesplní túto povinnosť podľa tejto *Prílohy*, je povinný dohodnutou formou poskytnúť objednávateľovi služby zľavu z ceny, pokiaľ nie je v *Zmluve o pripojení* dohodnuté inak.
- b) Každá zľava z ceny za nedodržanie hodnôt garantovaných parametrov SLA, podľa tejto *Prílohy* bude uplatňovaná vždy s ohľadom na príslušný okruh, na ktorý sa vzťahuje a za sledované obdobie.
- c) V prípade, že počas sledovaného obdobia bola na základe požiadavky objednávateľa vykonaná zmena parametrov okruhu (preloženie, zmena rýchlosti), budú parametre SLA vyhodnotené osobitne pre okruh pred zmenou a po nej.
- d) SWAN na základe zaznamenaných hodnôt vypočíta výšku zľavy z ceny.

Zľavy z ceny za SLA za nedodržanie dohodnutej úrovne SLA

Dostupnosť služby o	Zľava z mesačného poplatku
< 0,5%	3%
< 1,0%	5%
< 2,0%	7%
< 3,0%	10%

Nedodržanie hodnôt uznaných v časti SLA - Stratovosť

Stratovosť	Zľava z mesačného poplatku
0% - 20,0%	10%
20% - 50,0%	20%
50% a viac	30%

Nedodržanie max. doby odstránenia poruchy:

1% z ceny prepojenia za každú začatú hodinu nad garantovanú dobu odstránenia poruchy, maximálne však do výšky 25% mesačného poplatku.



## Príloha č. 4 k Zmluve o poskytovaní elektronických komunikačných služieb

### **ORGANIZAČNÉ OPATRENIA**

#### **1. Miesto poskytovania Služby**

Miesto poskytovania Služby je špecifikované písomnou formou – odovzdávacím protokolom podľa prílohy 3.

#### **2. Poverení pracovníci**

Prevádzkovateľ a účastníci listinnou formou podpísanou štatutárom si vzájomne oznámia poverených pracovníkov. V zozname poverených pracovníkov bude uvedené meno, priezvisko, číslo OP, meno zamestnávateľa, adresu zamestnávateľa, IČO zamestnávateľa, telefónne číslo a e-mailová adresa.

#### **3. Zodpovedný pracovník**

Účastník listinnou formou podpísanou štatutárom oznámi prevádzkovateľovi zodpovedného pracovníka. V oznámení bude uvedené meno, priezvisko, číslo OP, meno zamestnávateľa, adresu zamestnávateľa, IČO zamestnávateľa, telefónne číslo a e-mailovú adresu.

#### **4. Audit zariadení a poskytovanej služby**

Účastník si vyhradzuje právo kedykoľvek vykonať na zariadeniach a poskytovanej Službe serverhostingu audit a prevádzkovateľ sa zaväzuje konať súčinne s účastníkom. Za účastníka a prevádzkovateľa konajú v tejto veci poverení pracovníci.



## Príloha č. 5

k Zmluve o poskytovaní elektronických komunikačných služieb

### ŠPECIFIKÁCIA ZARIADENÍ PRE SERVERHOSTING SERVROV PRE ELEKTRONICKÉ VEREJNÉ OBSTARÁVANIE

#### 1. Housing

Housing je realizovaný v bezpečných priestoroch, ktoré spĺňajú všetky normy v zmysle požiadaviek EVO: vlastný rack pre housing, uzamykateľný, napájanie, záloha, klimatizácia, 24 hod. prístup pre identifikovanú osobu, poistené v prípade násilného vniknutia atď.. Zariadenie je umiestnené vo fyzicky zabezpečenom priestore – v kletke o veľkosti cca 4 m<sup>2</sup>.

#### 2. IDS/ IPS

Špecifikácia obsahuje IPS zariadenie a PC for monitoring.  
IPS zariadenie je modul firewall. Špecifikáciu zariadenia je príloha 5A.

PC pre monitoring predstavuje PC konzolu na zásahy pre administrátora IPS zariadenia. Je špecifikovaná výrobcom IPS zariadenia. IPS zariadenie zabezpečuje prístup z internetu a kontroluje traffic na celú aplikáciu.

Špecifikácia IBM PC: - *Microsoft Windows Server 2003 R2 SP1* 571KDXCPWJS

- compatible with 1 GHz or faster Pentium processor
- Color monitor with video card capable of 16-bit colors
- CD-ROM drive
- 100BaseT or faster connection
- Operating System Windows 2000 Professional, Server, and Advanced Server (Service Pack 4)

Note Support for Advanced Server requires turning Terminal Services off during installation. See your Microsoft documentation for information.

File System  
- NTFS

Memory  
- 1 Gigabyte, minimum

Virtual Memory  
- 2 Gigabytes, minimum

Hard Drive Space  
- 9 Gigabytes of free hard drive space, minimum

Inštalračné práce obsahujú spojzrdnenie a inštalračia zariadení v default nastavení na sledovanie SW a HW.

#### 3. Firewall apliancia

Cisco ASA 5510 apliancia obsahuje SW, 3FE, enkrypcia 3DES / AES, / pre prípad redundantného riešenia je nutné zakúpiť security plus aplianciu obsahuje HA, 5FE, enkrypcia 3 DES / AES /, výkonné bezpečnostné zariadenie so širokým rozsahom vlastností. Poskytuje funkciu apliačného firewallu. Detailná technická špecifikácia je v prílohe 5B.

#### 4. Switch

Cisco C2950 24 port, 10/100 Catalyst switch, Standard Image. Detailná špecifikácia je v prílohe 5C.

#### 5. Práce

Súvisiace s inštalračiou a mesačnou správou a security dohl'adom zariadení spomínaných v bodoch 2. až 4. tejto prílohy. Inštalračné práce obsahujú najmä komplexnú inštalračiu a základná konfigurácia zariadení, dovoz zariadení a ich montáž do racku, montáž racku atď..



**6. UPS**

Špecifikácia obsahuje APC Smart-UPS XL 2200VA RM 5U 230V + (2)SU48RMXLBP Battery Unit - doba dobehu 4 hod. pre IBM xseries 365.  
Špecifikáciu APC Smart-UPS XL 2200VA RM 5U 230V nájdete v prílohe 5D.

**7. Pripojenie EVO do siete Govnet**

Pripojenie do vládnej MPLS VPN siete Govnet na základe bezpečnostných pravidiel vieme zrealizovať v šírke prenosového pásma od 2.048 kbit/s do 102.400 kbit/s.

Zastrešuje a financuje Úrad Vlády SR, zodpovedná osoba ' \_\_\_\_\_  
a racionalizácie štátnej správy.

\_\_\_\_\_, poverený vedením Odboru informatizácie

Kontakt: f \_\_\_\_\_

R/g



**SWAN**

**Príloha č. 5A**

k Zmluve o poskytovaní elektronických komunikačných služieb

**ZARIADENIE MODULE FOR CISCO ASA 5500**



Data Sheet

## Cisco Advanced Inspection and Prevention Security Services Module for Cisco ASA 5500 Series Adaptive Security Appliances

The Cisco® Advanced Inspection and Prevention Security Services Module (AIP-SSM) for the Cisco ASA 5500 Series Adaptive Security Appliance provides proactive, full-featured intrusion prevention services to stop malicious traffic, including worms and network viruses, before they can affect your network.

### SECURITY SERVICES MODULE

Providing unparalleled protection for an organization's critical information assets, the Cisco ASA 5500 Series Adaptive Security Appliance provides best-in-class firewall and VPN capabilities in a single, easy-to-deploy platform. When combined with the advanced inspection capabilities of the AIP-SSM, the Cisco ASA 5500 Series Adaptive Security Appliance provides integrated, converged protection of an organization's servers and infrastructure without compromising the ability to use the network as a business tool.

### AIP-SSM Intrusion Prevention Services

Using Cisco IPS Sensor Software Version 5.x, the Cisco AIP-SSM combines inline prevention services with innovative technologies to improve accuracy. The result is total confidence in the protection offered by your intrusion prevention system (IPS) solution, without the fear of legitimate traffic being dropped. When deployed within Cisco ASA 5500 Series appliances, the AIP-SSM offers comprehensive protection of your network by collaborating with other network security resources, providing a proactive approach to protecting your network.

The Cisco AIP SSM helps users stop threats with greater confidence through the use of:

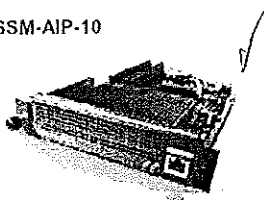
- **Accurate inline prevention technologies**—Provides unparalleled ability to take preventive action against a broader range of threats without the risk of dropping legitimate traffic. These unique technologies offer intelligent, automated, contextual analysis of your data and help ensure you are getting the most out of your intrusion prevention solution.
- **Multivector threat identification**—Protects your network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic in Layers 2 through 7.
- **Unique network collaboration**—Enhances scalability and resiliency through network collaboration, including efficient traffic capture techniques, load-balancing capabilities, and visibility into encrypted traffic.
- **Powerful management, event correlation, and support services**—Enables a complete solution, including configuration, management, data correlation, and advanced support services. In particular, the Cisco Security Monitoring, Analysis, and Response System (Cisco Security MARS) identifies, isolates, and recommends precision removal of offending elements, for a networkwide intrusion prevention solution. And the Cisco Incident Control System (ICS) prevents new worm and virus outbreaks by enabling the network to rapidly adapt and provide a distributed response.

When combined, these elements provide a comprehensive inline prevention solution, giving you the confidence to detect and stop the broadest range of malicious traffic before your business continuity is affected.

For more information about Cisco IPS Sensor Software Version 5.x, visit: [Cisco IPS Solution Data Sheet](#)

**Table 1.** Characteristics of Cisco ASA 5500 Series AIP-SSMs

Cisco ASA SSM-AIP-10



Cisco ASA SSM-AIP-20



<p>Concurrent Threat Mitigation Throughput (Firewall and IPS Services)</p> <p><b>Technical Specifications</b></p> <p>Memory</p> <p>Flash</p> <p><b>Environmental Operating Ranges</b></p> <p>Operating</p> <p>Temperature</p> <p>Relative Humidity</p> <p>Nonoperating</p> <p>Temperature</p> <p>Power Consumption</p> <p><b>Physical Specifications</b></p> <p>Dimensions (H x W x D)</p> <p>Weight (with Power Supply)</p> <p><b>Regulatory and Standards Compliance</b></p> <p>Safety</p> <p>Electromagnetic Compatibility (EMC)</p>	<ul style="list-style-type: none"> <li>• 150 Mbps with Cisco ASA 5510</li> <li>• 225 Mbps with Cisco ASA 5520</li> </ul> <p>1 GB</p> <p>256 MB</p> <p>32 to 104°F (0 to 40°C)</p> <p>5 to 95 percent noncondensing</p> <p>-13 to 158°F (-25 to 70°C)</p> <p>90W maximum</p> <p>1.70 x 6.80 x 11.00 in. (4.32cm x 17.27cm x 27.94cm)</p> <p>3.00 lb (1.36 kg)</p> <p>UL 1950, CSA C22.2 No. 950, EN 60950 IEC 60950, AS/NZS3260, TS001</p> <p>CE marking, FCC Part 15 Class A, AS/NZS 3548 Class A, VCCI Class A, EN55022 Class A, CISPR22 Class A, EN61000-3-2, EN61000-3-3</p>	<ul style="list-style-type: none"> <li>• 375 Mbps with Cisco ASA 5520</li> <li>• 450 Mbps with Cisco ASA 5540</li> </ul> <p>2 GB</p> <p>256 MB</p>
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**ORDERING INFORMATION**

To place an order, visit the [Cisco Ordering Home Page](#). See Table 2 for ordering information.

**Table 2.** Ordering Information

Product Name	Part Number
<b>Cisco ASA 5510 Series Adaptive Security Appliances</b>	
Cisco ASA 5510 Adaptive Security Appliance with SSM-AIP-10 (chassis, software, 50 VPN peers, 4 Fast Ethernet interfaces, Triple Data Encryption Standard/Advanced Encryption Standard [3DES/AES])	ASA5510-AIP10-K9
<b>Cisco ASA 5520 Series Adaptive Security Appliances</b>	
Cisco ASA 5520 Adaptive Security Appliance with SSM-AIP-10 (chassis, software, 300 VPN peers, 4 Gigabit Ethernet interfaces, 3DES/AES)	ASA5520-AIP10-K9

Product Name	Part Number
Cisco ASA 5520 Adaptive Security Appliance with SSM-AIP-20 (chassis, software, 300 VPN peers, 4 Gigabit Ethernet interfaces, 3DES/AES)	ASA5520-AIP20-K9
<b>Cisco ASA 5540 Series Adaptive Security Appliances</b>	
Cisco ASA 5540 Adaptive Security Appliance with SSM-AIP-20 (chassis, software, 500 VPN peers, 4 Gigabit Ethernet interfaces, 3DES/AES)	ASA5540-AIP20-K9
<b>Security Services Modules</b>	
Cisco ASA 5500 Series Advanced Inspection and Prevention Security Services Module 10 (AIP-SSM-10)	ASA-SSM-AIP-10-K9=
Cisco ASA 5500 Series Advanced Inspection and Prevention Security Services Module 20 (AIP-SSM-20)	ASA-SSM-AIP-20-K9=

## SERVICE AND SUPPORT

Cisco offers a wide range of service programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services please visit <http://www.cisco.com/go/services/security>.

### Cisco Services for IPS

Cisco Services for IPS is an integral part of the Cisco Self-Defending Network strategy. As part of the Cisco Technical Support Services portfolio, Cisco Services for IPS offers a comprehensive security service that allows your Cisco IPS solution to stay current on the latest threats so that malicious or damaging traffic is accurately identified, classified, and stopped. Cisco Services for IPS features:

- Signature file updates and alerts
- Registered access to Cisco.com for online tools and technical assistance
- Access to Cisco Technical Assistance Center (TAC)
- Cisco IPS Sensor Software updates
- Options for Advance replacement of failed hardware



**Table 3. Ordering Information for Advance Hardware Replacement Options**

Appliance/Module Part Number	Service Option Part Number	Service Option Name
ASA5510-AIP10-K9	• CON-SU1-AS1A10K9	• IPS Service with Advance Hardware replacement Next Business Day (NBD)
	• CON-SU2-AS1A10K9	• IPS Svc with Adv HW repl 8x5 within four hours
	• CON-SU3-AS1A10K9	• IPS Svc with Adv HW repl 24x7 within four hours
	• CON-SU4-AS1A10K9	• IPS Svc with Adv HW repl 24x7 within two hours
	• CON-SUO1-AS1A10K9	• IPS Svc with Adv HW repl and Field Engineer onsite Next Business Day (NBD)
	• CON-SUO2-AS1A10K9	• IPS Svc with Adv HW repl onsite 8x5x4
	• CON-SUO3-AS1A10K9	• IPS Svc with Adv HW repl onsite 24x7x4
	• CON-SUO4-AS1A10K9	• IPS Svc with Adv HW repl onsite 24x7x2
ASA5520-AIP10-K9	• CON-SU1-AS2A10K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SU2-AS2A10K9	• IPS Svc with Adv HW repl 8x5 within four hours
	• CON-SU3-AS2A10K9	• IPS Svc with Adv HW repl 24x7 within four hours
	• CON-SU4-AS2A10K9	• IPS Svc with Adv HW repl 24x7 within two hours
	• CON-SUO1-AS2A10K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SUO2-AS2A10K9	• IPS Svc with Adv HW repl onsite 8x5x4
	• CON-SUO3-AS2A10K9	• IPS Svc with Adv HW repl onsite 24x7x4
	• CON-SUO4-AS2A10K9	• IPS Svc with Adv HW repl onsite 24x7x2
ASA5520-AIP20-K9	• CON-SU1-AS2A20K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SU2-AS2A20K9	• IPS Svc with Adv HW repl 8x5 within four hours
	• CON-SU3-AS2A20K9	• IPS Svc with Adv HW repl 24x7 within four hours
	• CON-SU4-AS2A20K9	• IPS Svc with Adv HW repl 24x7 within two hours
	• CON-SUO1-AS2A20K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SUO2-AS2A20K9	• IPS Svc with Adv HW repl onsite 8x5x4
	• CON-SUO3-AS2A20K9	• IPS Svc with Adv HW repl onsite 24x7x4
	• CON-SUO4-AS2A20K9	• IPS Svc with Adv HW repl onsite 24x7x2
ASA5540-AIP20-K9	• CON-SU1-AS4A20K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SU2-AS4A20K9	• IPS Svc with Adv HW repl 8x5 within four hours
	• CON-SU3-AS4A20K9	• IPS Svc with Adv HW repl 24x7 within four hours
	• CON-SU4-AS4A20K9	• IPS Svc with Adv HW repl 24x7 within two hours
	• CON-SUO1-AS4A20K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SUO2-AS4A20K9	• IPS Svc with Adv HW repl onsite 8x5x4
	• CON-SUO3-AS4A20K9	• IPS Svc with Adv HW repl onsite 24x7x4
	• CON-SUO4-AS4A20K9	• IPS Svc with Adv HW repl onsite 24x7x2

Appliance/Module Part Number	Service Option Part Number	Service Option Name
ASA-SSM-AIP-10-K9=	• CON-SU1- ASIP10K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SU2-ASIP10K9	• IPS Svc with Adv HW repl 8x5 within four hours
	• CON-SU3-ASIP10K9	• IPS Svc with Adv HW repl 24x7 within four hours
	• CON-SU4-ASIP10K9	• IPS Svc with Adv HW repl 24x7 within two hours
	• CON-SUO1-ASIP10K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SUO2-ASIP10K9	• IPS Svc with Adv HW repl onsite 8x5x4
	• CON-SUO3-ASIP10K9	• IPS Svc with Adv HW repl onsite 24x7x4
	• CON-SUO4-ASIP10K9	• IPS Svc with Adv HW repl onsite 24x7x2
ASA-SSM-AIP-20-K9=	• CON-SU1- ASIP20K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SU2-ASIP20K9	• IPS Svc with Adv HW repl 8x5 within four hours
	• CON-SU3-ASIP20K9	• IPS Svc with Adv HW repl 24x7 within four hours
	• CON-SU4-ASIP20K9	• IPS Svc with Adv HW repl 24x7 within two hours
	• CON-SUO1-ASIP20K9	• IPS Svc with Adv HW repl onsite NBD
	• CON-SUO2-ASIP20K9	• IPS Svc with Adv HW repl onsite 8x5x4
	• CON-SUO3-ASIP20K9	• IPS Svc with Adv HW repl onsite 24x7x4
	• CON-SUO4-ASIP20K9	• IPS Svc with Adv HW repl onsite 24x7x2

For more information on Cisco Services for IPS, please visit: [http://www.cisco.com/en/US/products/ps6076/serv\\_home.html](http://www.cisco.com/en/US/products/ps6076/serv_home.html)

## EXPORT CONSIDERATIONS

Cisco IPS 4200 Series sensors are subject to export controls. For guidance, please refer to the export compliance Website at: <http://www.cisco.com/ww/export/crypto/>

For specific export questions, contact [export@cisco.com](mailto:export@cisco.com).

## ADDITIONAL INFORMATION

For more information about Cisco IPS solutions, visit:

- <http://www.cisco.com/go/ips>

For more information about Cisco ASA 5500 Series adaptive security appliances, visit:

- <http://www.cisco.com/go/asa>

For information about Cisco IDS 4200 Series sensors that have reached end-of-sale status, visit:

- [http://www.cisco.com/en/US/products/hw/vpndevc/ps4077/prod\\_eol\\_notices\\_list.html](http://www.cisco.com/en/US/products/hw/vpndevc/ps4077/prod_eol_notices_list.html)

For more information about CiscoWorks VPN/Security Management System (VMS) solutions (IPS management) and Cisco Security MARS, visit:

- <http://www.cisco.com/go/vms>
- <http://www.cisco.com/go/mars>



**Corporate Headquarters**  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

**European Headquarters**  
Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

**Americas Headquarters**  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

**Asia Pacific Headquarters**  
Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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k Zmluve o poskytovaní elektronických komunikačných služieb

**ZARIADENIE CISCO ASA 5500 SERIES ADAPTIVE SECURITY APPLIANCES**



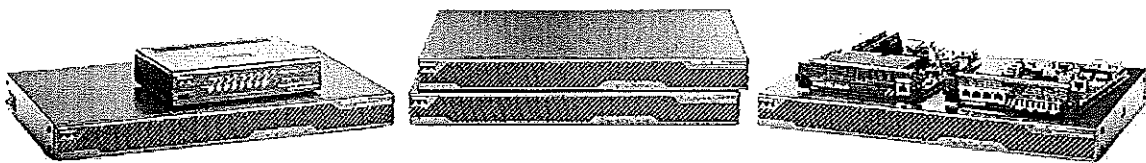
Data Sheet

## Cisco ASA 5500 Series Adaptive Security Appliances

Cisco® ASA 5500 Series adaptive security appliances are purpose-built solutions that combine best-in-class security and VPN services with an innovative, extensible services architecture. Designed as a core component of the Cisco Self-Defending Network, the Cisco ASA 5500 Series provides proactive threat defense that stops attacks before they spread through the network, controls network activity and application traffic, and delivers flexible VPN connectivity. The result is a powerful multifunction network security appliance family that provides the security breadth and depth for protecting home office, branch office, small and medium-sized business, and enterprise networks while reducing the overall deployment and operations costs and complexities associated with providing this new level of security.

The Cisco ASA 5500 Series delivers a powerful combination of multiple market-proven technologies in a single platform, making it operationally and economically feasible for organizations to deploy comprehensive security services to more locations. The comprehensive portfolio of services within the Cisco ASA 5500 Series enables customization for location-specific needs through tailored product editions for small to medium-sized businesses and for enterprises. These editions enable superior protection by providing the right services for the right location. Each edition combines a focused set of Cisco ASA 5500 Series services (such as firewall, SSL and IPsec VPN, IPS, and anti-X services) to meet the needs of specific environments within the enterprise network. By ensuring the security needs of each location are met, the overall network security posture is raised.

Figure 1. Cisco ASA 5500 Series Adaptive Security Appliances



The Cisco ASA 5500 Series helps businesses more effectively and efficiently protect their networks while delivering exceptional investment protection through the following key elements:

- **Market-proven security and VPN capabilities**—Full-featured, high-performance firewall, intrusion prevention (IPS), anti-X, and Secure Sockets Layer/IP Security (SSL/IPsec) VPN technologies deliver robust application security, user- and application-based access control, worm and virus mitigation, malware protection, content filtering, and remote user/site connectivity.
- **Extensible services architecture**— Taking advantage of a modular services processing and policy framework offered by the Cisco ASA 5500 Series, businesses can apply specific security and network services on a per-traffic-flow basis, delivering highly granular policy controls and a wide range of protective services with streamlined traffic processing. The efficiencies of this policy framework, as well as software and hardware extensibility through user-installable security services modules (SSMs) and security services cards (SSCs), advance the evolution of existing services and the deployment of new services without requiring a platform replacement or performance compromise.

With these capabilities, the Cisco ASA 5500 Series provides the foundation for highly customizable security policies and unprecedented services extensibility to help protect against the fast-evolving threat environment.

- **Reduced deployment and operations costs**—The multifunction Cisco ASA 5500 Series allows for platform, configuration, and management standardization, helping to decrease the costs of deployment and ongoing operations.

## INTRODUCING THE CISCO ASA 5500 SERIES

The Cisco ASA 5500 Series includes the Cisco ASA 5505, 5510, 5520, 5540, and 5550 adaptive security appliances—purpose-built, high-performance security solutions that take advantage of Cisco expertise in developing industry-leading, award-winning security and VPN solutions. The series integrates the latest technologies from Cisco PIX<sup>®</sup> 500 Series security appliances, Cisco IPS 4200 Series sensors, and Cisco VPN 3000 Series concentrators. Designed as a key component of the Cisco Self-Defending Network, the Cisco ASA 5500 Series provides proactive threat defense that stops attacks before they spread through the network, controls network activity and application traffic, and delivers flexible VPN connectivity. The result is a powerful multifunction network security appliance family that provides the security breadth and depth for protecting small and medium-sized business (SMB), enterprise, and service provider networks while reducing the overall deployment and operations costs and complexities associated with providing this new level of security.

The extensible Cisco AIM services architecture and the flexible multiprocessor design of the Cisco ASA 5500 Series enable the adaptive security appliances to provide unprecedented performance for multiple concurrent security services while delivering exceptional investment protection. The Cisco ASA 5500 Series appliances combine multiple high-performance processors that work in concert to deliver advanced firewall services, IPS services, anti-X/content security services, IPsec and SSL VPN services, and more. Businesses can add other high-performance security services by installing Cisco ASA 5500 Series security services modules—such as the Advanced Inspection and Prevention Security Services Module (AIP SSM) for intrusion prevention services or the Cisco ASA 5500 Series Content Security and Control Security Services Module (CSC SSM) for advanced anti-X services. This flexible design makes the Cisco ASA 5500 Series uniquely capable of adapting to new threats, protecting against the fast-evolving threat environment, and providing exceptional investment protection through its use of programmable hardware to “future-proof” the platform for years to come. The combination of these high-performance, market-proven security and VPN capabilities, along with integrated Gigabit Ethernet connectivity and a diskless, flash-based architecture, make the Cisco ASA 5500 Series an ideal choice for businesses requiring a best-in-class security solution with high performance, flexibility, reliability, and investment protection.

All Cisco ASA 5500 Series appliances include maximum IPsec VPN users on the base system; SSL VPN is licensed and purchased separately. By converging SSL and IPsec VPN services with comprehensive threat defense technologies, the Cisco ASA 5500 Series provides highly customizable network access tailored to meet the requirements of diverse deployment environments while providing advanced endpoint and network-level security.

## CISCO ASA 5505 ADAPTIVE SECURITY APPLIANCE

The Cisco ASA 5505 Adaptive Security Appliance is a next-generation, full-featured security appliance for small business, branch office, and enterprise teleworker environments that delivers high-performance firewall, SSL and IPsec VPN, and rich networking services in a modular, “plug-and-play” appliance. Using the integrated Web-based Cisco Adaptive Security Device Manager, the Cisco ASA 5505 can be rapidly deployed and easily managed, enabling businesses to minimize operations costs. The Cisco ASA 5505 features a flexible 8-port 10/100 Fast Ethernet switch, whose ports can be dynamically grouped to create up to three separate VLANs for home, business, and Internet traffic for improved network segmentation and security. The Cisco ASA 5505 provides two Power over Ethernet (PoE) ports, enabling simplified deployment of Cisco IP phones with zero-touch secure voice over IP (VoIP) capabilities, and deployment of external wireless access points for extended network mobility. The Cisco ASA 5505 also provides significant expandability and investment protection through its modular design,

similar to the rest of the Cisco ASA 5500 Series, offering both an external expansion slot and multiple USB ports that enable the addition of services in the future.

As business needs grow, customers can install a Security Plus upgrade license, enabling the Cisco ASA 5505 Adaptive Security Appliance to scale to support a higher connection capacity and a higher number of IPsec VPN users, add full DMZ support, and integrate into switched network environments through VLAN trunking support. Furthermore, this upgrade license maximizes business continuity by enabling support for redundant ISP connections and stateless Active/Standby high-availability services. This combination of market-leading security and VPN services, advanced networking features, flexible remote management capabilities, and future extensibility makes the Cisco ASA 5505 an excellent choice for businesses requiring a best-in-class small business, branch office, or enterprise teleworker security solution.

Table 1 lists features of the Cisco ASA 5505.

**Table 1.** Cisco ASA 5505 Adaptive Security Appliance Platform Capabilities and Capacities

Feature	Description
Firewall throughput	Up to 160 Mbps
VPN throughput	Up to 100 Mbps
Concurrent sessions	10,000/25,000*
IPsec VPN peers	10; 25*
SSL VPN peer license levels**	10 or 25
Interfaces	8-port Fast Ethernet switch with dynamic port grouping (including 2 PoE ports)
Virtual interfaces (VLANs)	3 with restricted DMZ; 3 with full DMZ*
High availability	Not supported; stateless Active/Standby and dual ISP support*

\*Upgrade available with Cisco ASA 5505 Security Plus license

\*\*Separately licensed feature; includes two with the base system

## CISCO ASA 5510 ADAPTIVE SECURITY APPLIANCE

The Cisco ASA 5510 Adaptive Security Appliance delivers advanced security and networking services for small and medium-sized businesses and enterprise remote/branch offices in an easy-to-deploy, cost-effective appliance. These services can be easily managed and monitored by the integrated, Web-based Cisco Adaptive Security Device Manager application, thus reducing the overall deployment and operations costs associated with providing this high level of security. The Cisco ASA 5510 Adaptive Security Appliance provides high-performance firewall and VPN services and three integrated 10/100 Fast Ethernet interfaces. It optionally provides high-performance intrusion prevention and worm mitigation services through the ATP SSM, or comprehensive malware protection services through the CSC SSM. This unique combination of services on a single platform makes the Cisco ASA 5510 an excellent choice for businesses requiring a cost-effective, extensible, DMZ-enabled security solution.

As business needs grow, customers can install a Security Plus upgrade license, enabling the Cisco ASA 5510 Adaptive Security Appliance to scale to a higher interface density and integrate into switched network environments through VLAN support. Furthermore, this upgrade license maximizes business continuity by enabling Active/Active and Active/Standby high-availability services. Using the optional security context capabilities of the Cisco ASA 5510 Adaptive Security Appliance, businesses can deploy up to five virtual firewalls within an appliance to enable compartmentalized control of security policies on a departmental level. This virtualization strengthens security and reduces overall management and support costs while consolidating multiple security devices into a single appliance.



Table 2 lists features of the Cisco ASA 5510.

**Table 2. Cisco ASA 5510 Adaptive Security Appliance Platform Capabilities and Capacities**

Feature	Description
Firewall throughput	Up to 300 Mbps
Concurrent threat mitigation throughput (firewall + IPS services)	<ul style="list-style-type: none"> <li>• Up to 150 Mbps with AIP-SSM-10</li> <li>• Up to 300 Mbps with AIP-SSM-20</li> </ul>
VPN throughput	Up to 170 Mbps
Concurrent sessions	50,000/130,000*
IPsec VPN peers	250
SSL VPN peer license levels**	10, 25, 50, 100, or 250
Security contexts	Up to 5***
Interfaces	3 Fast Ethernet + 1 management port; 5 Fast Ethernet ports*
Virtual interfaces (VLANs)	10; 25*
High availability	Not supported; Active/Active, Active/Standby*

\*Upgrade available with Cisco ASA 5510 Security Plus license

\*\*Separately licensed feature; includes two with the base system

\*\*\*Separately licensed feature; includes two with the Cisco ASA 5510 Security Plus license

## CISCO ASA 5520 ADAPTIVE SECURITY APPLIANCE

The Cisco ASA 5520 Adaptive Security Appliance delivers security services with Active/Active high availability and Gigabit Ethernet connectivity for medium-sized enterprise networks in a modular, high-performance appliance. With four Gigabit Ethernet interfaces and support for up to 100 VLANs, businesses can easily deploy the Cisco ASA 5520 into multiple zones within their network. The Cisco ASA 5520 Adaptive Security Appliance scales with businesses as their network security requirements grow, delivering solid investment protection.

Businesses can extend their SSL and IPsec VPN capacity to support a larger number of mobile workers, remote sites, and business partners. Businesses can scale up to 750 SSL VPN peers on each Cisco ASA 5520 by installing an SSL VPN upgrade license; 750 IPsec VPN peers are supported on the base platform. VPN capacity and resiliency can also be increased by taking advantage of the Cisco ASA 5520's integrated VPN clustering and load-balancing capabilities. The Cisco ASA 5520 supports up to 10 appliances in a cluster, supporting a maximum of 7500 SSL VPN peers or 7500 IPsec VPN peers per cluster. The advanced application-layer security and anti-X defenses provided by the Cisco ASA 5520 can be extended by deploying the high-performance intrusion prevention and worm mitigation capabilities of the AIP SSM, or the comprehensive malware protection of the CSC SSM. Using the optional security context capabilities of the Cisco ASA 5520 Adaptive Security Appliance, businesses can deploy up to 20 virtual firewalls within an appliance to enable compartmentalized control of security policies on a departmental level. This virtualization strengthens security and reduces overall management and support costs while consolidating multiple security devices into a single appliance.

Table 3 lists features of the Cisco ASA 5520.

**Table 3. Cisco ASA 5520 Adaptive Security Appliance Platform Capabilities and Capacities**

Feature	Description
Firewall throughput	Up to 450 Mbps
Concurrent threat mitigation throughput (firewall + IPS services)	<ul style="list-style-type: none"> <li>• Up to 225 Mbps with AIP-SSM-10</li> <li>• Up to 375 Mbps with AIP-SSM-20</li> </ul>
VPN throughput	Up to 225 Mbps

Concurrent sessions	280,000
IPsec VPN peers	750
SSL VPN peer license levels*	10, 25, 50, 100, 250, 500, or 750
Security contexts	Up to 20*
Interfaces	4 Gigabit Ethernet ports and 1 Fast Ethernet port
Virtual interfaces (VLANs)	100
Scalability	VPN clustering and load balancing
High availability	Active/Active, Active/Standby

\*Separately licensed feature; includes two with base system

## CISCO ASA 5540 ADAPTIVE SECURITY APPLIANCE

The Cisco ASA 5540 Adaptive Security Appliance delivers high-performance, high-density security services with Active/Active high availability and Gigabit Ethernet connectivity for medium-sized and large enterprise and service-provider networks, in a reliable, modular appliance. With four Gigabit Ethernet interfaces and support for up to 100 VLANs, businesses can use the Cisco ASA 5540 to segment their network into numerous zones for improved security. The Cisco ASA 5540 Adaptive Security Appliance scales with businesses as their network security requirements grow, delivering exceptional investment protection and services scalability. The advanced network and application-layer security services and anti-X defenses provided by the Cisco ASA 5540 Adaptive Security Appliance can be extended by deploying the AIP SSM for high-performance intrusion prevention and worm mitigation.

Businesses can scale their SSL and IPsec VPN capacity to support a larger number of mobile workers, remote sites, and business partners. Businesses can scale up to 2500 SSL VPN peers on each Cisco ASA 5540 by installing an SSL VPN upgrade license; 5000 IPsec VPN peers are supported on the base platform. VPN capacity and resiliency can also be increased by taking advantage of the Cisco ASA 5540's integrated VPN clustering and load-balancing capabilities. The Cisco ASA 5540 supports up to 10 appliances in a cluster, supporting a maximum of 25,000 SSL VPN peers or 50,000 IPsec VPN peers per cluster. Using the optional security context capabilities of the Cisco ASA 5540 Adaptive Security Appliance, businesses can deploy up to 50 virtual firewalls within an appliance to enable compartmentalized control of security policies on a per-department or per-customer basis, and deliver reduced overall management and support costs.

Table 4 lists features of the Cisco ASA 5540.

Table 4. Cisco ASA 5540 Adaptive Security Appliance Platform Capabilities and Capacities

Feature	Description
Firewall throughput	Up to 650 Mbps
Concurrent threat mitigation throughput (firewall + IPS services)	Up to 450 Mbps with AIP-SSM-20
VPN throughput	Up to 325 Mbps
Concurrent sessions	400,000
IPsec VPN peers	5000
SSL VPN peer license levels*	10, 25, 50, 100, 250, 500, 750, 1000, and 2500
Security contexts	Up to 50*
Interfaces	4 Gigabit Ethernet ports and 1 Fast Ethernet port
Virtual interfaces (VLANs)	200
Scalability	VPN clustering and load balancing
High availability	Active/Active, Active/Standby

\*Separately licensed feature; includes two with base system

## CISCO ASA 5550 ADAPTIVE SECURITY APPLIANCE

The Cisco ASA 5550 Adaptive Security Appliance delivers gigabit-class security services with Active/Active high availability and fiber and Gigabit Ethernet connectivity for large enterprise and service-provider networks in a reliable, 1-rack-unit form factor. Using its eight Gigabit Ethernet interfaces, four Small Form-Factor Pluggable (SFP) fiber interfaces\*, and support for up to 200 VLANs, businesses can segment their network into numerous high-performance zones for improved security.

The Cisco ASA 5550 Adaptive Security Appliance scales with businesses as their network security requirements grow, delivering exceptional investment protection and services scalability. Businesses can scale their SSL and IPsec VPN capacity to support a larger number of mobile workers, remote sites, and business partners. Businesses can scale up to 5000 SSL VPN peers on each Cisco ASA 5550 by installing an SSL VPN upgrade license; 5000 IPsec VPN peers are supported on the base platform. VPN capacity and resiliency can also be increased by taking advantage of the Cisco ASA 5550's integrated VPN clustering and load-balancing capabilities. The Cisco ASA 5550 supports up to 10 appliances in a cluster, supporting a maximum of 50,000 SSL VPN peers or 50,000 IPsec VPN peers per cluster. Using the optional security context capabilities of the Cisco ASA 5550 Adaptive Security Appliance, businesses can deploy up to 50 virtual firewalls within an appliance to enable compartmentalized control of security policies on a per-department or per-customer basis, and deliver reduced overall management and support costs.

**Note:** The system provides a total of 12 Gigabit Ethernet ports, of which only 8 can be in service at any time. Businesses can choose between copper or fiber connectivity, providing flexibility for data center, campus, or enterprise edge connectivity.

Table 5 lists features of the Cisco ASA 5550.

Table 5. Cisco ASA 5550 Adaptive Security Appliance Platform Capabilities and Capacities






Feature	Description
Firewall throughput	Up to 1.2 Gbps
VPN throughput	Up to 425 Mbps
Concurrent sessions	650,000
IPsec VPN peers	5000
SSL VPN peer license levels*	10, 25, 50, 100, 250, 500, 750, 1000, 2500, and 5000
Security contexts	Up to 50*
Interfaces	8 Gigabit Ethernet ports, 4 SFP fiber ports, and 1 Fast Ethernet port
Virtual interfaces (VLANs)	200
Scalability	VPN clustering and load balancing
High availability	Active/Active, Active/Standby

\*Separately licensed feature; includes two with base system

## PRODUCT SPECIFICATIONS

Table 6 provides a comparison of the Cisco ASA 5505, 5510, 5520, 5540, and 5550 Adaptive Security Appliances.

Table 6. Characteristics of Cisco ASA 5500 Series Adaptive Security Appliances

	Cisco ASA 5505	Cisco ASA 5510	Cisco ASA 5520	Cisco ASA 5540	Cisco ASA 5550
					
Users/nodes	10, 50, or unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Firewall throughput	Up to 150 Mbps	Up to 300 Mbps	Up to 450 Mbps	Up to 650 Mbps	Up to 1.2 Gbps
Concurrent threat mitigation throughput (firewall + IPS services)	Not available	<ul style="list-style-type: none"> <li>Up to 150 Mbps with AIP-SSM-10</li> <li>Up to 300 Mbps with AIP-SSM-20</li> </ul>	<ul style="list-style-type: none"> <li>Up to 225 Mbps with AIP-SSM-10</li> <li>Up to 375 Mbps with AIP-SSM-20</li> </ul>	Up to 450 Mbps with AIP-SSM-20	Not available
3DES/AES VPN throughput	Up to 100 Mbps	Up to 170 Mbps	Up to 225 Mbps	Up to 325 Mbps	Up to 360 Mbps
IPsec VPN peers	10; 25*	250	750	5000	5000
SSL VPN peers* (included/maximum)	2/25	2/250	2/750	2/2500	2/5000
Concurrent sessions	10,000; 25,000*	50,000; 130,000*	280,000	400,000	650,000
New sessions/second	3000	6000	9000	20,000	28,000
Integrated network ports	8-port Fast Ethernet switch (including 2 PoE ports)	3 Fast Ethernet + 1 management port; 5 Fast Ethernet ports*	4 Gigabit Ethernet, 1 Fast Ethernet	4 Gigabit Ethernet, 1 Fast Ethernet	8 Gigabit Ethernet, 4 SFP Fiber, 1 Fast Ethernet
Virtual interfaces (VLANs)	3 (no trunking); 3	10; 25 *	100	200	200
Security contexts (included/maximum)	0/0	0/0 (Base); 2/5 (Security Plus)	2/20	2/50	2/50
High availability	Not supported; stateless Active/Standby*	Not supported; Active/Active and Active/Standby*	Active/Active and Active/Standby	Active/Active and Active/Standby	Active/Active and Active/Standby
Expansion slot	1, SSC	1, SSM	1, SSM	1, SSM	0
User-accessible flash slot	0	1	1	1	1
USB 2.0 ports	3 (1 on front, 2 on rear)	2	2	2	2
Serial ports	1 RJ-45 console	2 RJ-45, console and auxiliary	2 RJ-45, console and auxiliary	2 RJ-45, console and auxiliary	2 RJ-45, console and auxiliary
Rack-mountable	Yes, with rack-mount kit (available in the future)	Yes	Yes	Yes	Yes
Wall-mountable	Yes, with wall-mount kit (available in the future)	No	No	No	No
Security lock slot (for physical security)	1	0	0	0	0
<b>Technical Specifications</b>					
Memory	256 MB	256 MB	512 MB	1024 MB	4096 MB
Minimum system flash	64 MB	64 MB	64 MB	64 MB	64 MB
System bus	Multibus architecture	Multibus architecture	Multibus architecture	Multibus architecture	Multibus architecture
<b>Environmental Operating Ranges</b>					
Operating					

Temperature	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)
Relative humidity	5 to 95 percent noncondensing	5 to 95 percent noncondensing
Altitude	0 to 9840 ft (3000 m)	0 to 9840 ft (3000 m)
Shock	1.14 m/sec (45 in./sec) 1/2 sine input	1.14 m/sec (45 in./sec) 1/2 sine input
Vibration	0.41 Grms2 (3 to 500 Hz) random input	0.41 Grms2 (3 to 500 Hz) random input
Acoustic noise	0 dBa max	60 dBa max
<b>Nonoperating</b>		
Temperature	-13 to 158°F (-25 to 70°C)	-13 to 158°F (-25 to 70°C)
Relative humidity	5 to 95 percent noncondensing	5 to 95 percent noncondensing
Altitude	0 to 15,000 ft (4570 m)	0 to 15,000 ft (4570 m)
Shock	30 G	30 G
Vibration	0.41 Grms2 (3 to 500 Hz) random input	0.41 Grms2 (3 to 500 Hz) random input
<b>Power</b>		
<b>Input (per power supply)</b>		
Range line voltage	100 to 240 VAC	100 to 240 VAC
Normal line voltage	100 to 240 VAC	100 to 240 VAC
Current	1.8A	3A
Frequency	50/60 Hz	47/63 Hz, single-phase
<b>Output</b>		
Steady state	20W	150W
Maximum peak	96W	190W
Maximum heat dissipation	72 BTU/hr	648 BTU/hr
<b>Physical Specifications</b>		
Form factor	Desktop	1 RU, 19-in. rack-mountable
Dimensions (H x W x D)	1.75 x 7.89 x 6.87 in. (4.45 x 20.04 x 17.45 cm)	1.75 x 17.5 x 14.25 in. (4.45 x 20.04 x 36.20 cm)
Weight (with power supply)	4.0 lb (1.8 kg)	20.0 lb (9.07 kg)
		22.0 lb (10 kg)
<b>Regulatory and Standards Compliance</b>		
Safety	UL 60950, CSA C22.2 No. 60950, EN 60950 IEC 60950, AS/NZS60950	UL 1950, CSA C22.2 No. 950, EN 60950 IEC 60950, AS/NZS3260, TS001
Electromagnetic compatibility (EMC)	CE marking, FCC Part 15 Class B, AS/NZS 3548 Class B, VCCI Class B, EN55022 Class B, CISPR22 Class B, EN61000-3-2, EN61000-3-3	CE marking, FCC Part 15 Class A, AS/NZS 3548 Class A, VCCI Class A, EN55022 Class A, CISPR22 Class A, EN61000-3-2, EN61000-3-3
Industry certifications	In process: ICSA Firewall, ICSA IPSec, Common Criteria EAL4	ICSA Firewall, ICSA IPSec, ICSA Gateway Anti-Virus (when paired with CSC-SSM-10 or CSC-SSM-20), FIPS 140-2 Level 2, NEBS Level 3 In process: Common Criteria EAL4+
		In process: ICSA Firewall, ICSA IPSec, Common Criteria EAL4, FIPS 140-2 Level 2

\*Available through an upgrade license

## SECURITY SERVICES MODULES



The Cisco ASA 5500 Series brings a new level of integrated security performance to networks with its unique AIM services and multiprocessor hardware architecture. This architecture allows businesses to adapt and extend the high-performance security services profile of the Cisco ASA 5500 Series. Customers can add additional high-performance services using security services modules with dedicated security co-processors, and can custom-tailor flow-specific policies using a highly flexible policy framework. This adaptable architecture enables businesses to deploy new security services when and where they are needed, such as adding the broad range of intrusion prevention and advanced anti-worm services delivered by the AIP SSM or the comprehensive malware protection and anti-X services enabled by the CSC SSM. Further, the architecture allows Cisco to introduce new services to address new threats, delivering businesses outstanding investment protection for the Cisco ASA 5500 Series.

### Cisco ASA 5500 Series Advanced Inspection and Prevention Module

The Cisco ASA 5500 Series AIP SSM is an inline, network-based solution that accurately identifies, classifies, and stops malicious traffic before it affects business continuity. It combines inline prevention services with innovative technologies, resulting in total confidence in the provided protection of the deployed IPS solution, without the fear of legitimate traffic being dropped. The AIP SSM also offers comprehensive network protection through its unique ability to collaborate with other network security resources, providing a proactive approach to protecting the network. It uses accurate inline prevention technologies that provide unparalleled confidence to take preventive action on a broader range of threats without the risk of dropping legitimate traffic. These unique technologies offer intelligent, automated, contextual analysis of data and help ensure that businesses are getting the most out of their intrusion prevention solutions. Furthermore, the AIP SSM uses multivector threat identification to protect the network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic in Layers 2 through 7.

Table 7 details the two AIP SSM models that are available, and their respective performance and physical characteristics.

**Table 7.** Characteristics of Cisco ASA 5500 Series AIP SSMs

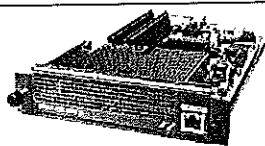
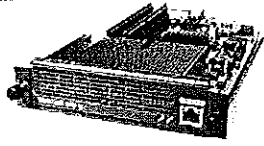
	Cisco ASA 5500 Series SSM-AIP-10	Cisco ASA 5500 Series SSM-AIP-20
		
Concurrent threat mitigation throughput (firewall + IPS services)	<ul style="list-style-type: none"> <li>• 150 Mbps with Cisco ASA 5510</li> <li>• 225 Mbps with Cisco ASA 5520</li> </ul>	<ul style="list-style-type: none"> <li>• 300 Mbps with Cisco ASA 5510</li> <li>• 375 Mbps with Cisco ASA 5520</li> <li>• 450 Mbps with Cisco ASA 5540</li> </ul>
<b>Technical Specifications</b>		
Memory	1 GB	2 GB
Flash	256 MB	256 MB
<b>Environmental Operating Ranges</b>		
<b>Operating</b>		
Temperature	32 to 104°F (0 to 40°C)	
Relative humidity	5 to 95 percent noncondensing	
<b>Nonoperating</b>		
Temperature	-13 to 158°F (-25 to 70°C)	
Power consumption	90W maximum	
<b>Physical Specifications</b>		
Dimensions (H x W x D)	1.70 x 6.80 x 12.25 in. (4.32 x 17.27 x 31.12 cm)	

Weight (with power supply)	3.00 lb (1.36 kg)
<b>Regulatory and Standards Compliance</b>	
Safety	UL 1950, CSA C22.2 No. 950, EN 60950 IEC 60950, AS/NZS3260, TS001
Electromagnetic compatibility (EMC)	CE marking, FCC Part 15 Class A, AS/NZS 3548 Class A, VCCI Class A, EN55022 Class A, CISPR22 Class A, EN61000-3-2, EN61000-3-3

### Cisco ASA 5500 Series Content Security and Control Module

The Cisco ASA 5500 Series CSC SSM delivers industry-leading threat protection and content control at the Internet edge, providing comprehensive antivirus, anti-spyware, file blocking, anti-spam, anti-phishing, URL blocking and filtering, and content filtering—in an easy-to-manage solution. The CSC SSM bolsters the Cisco ASA 5500 Series' strong security capabilities, providing customers with additional protection and control over the content of their business communications. The module provides additional flexibility and choice over the functioning and deployment of Cisco ASA 5500 Series appliances. Licensing options enable organizations to customize the features and capabilities to each group's needs, with features that include advanced content services and increased user capacity. The CSC SSM ships with a default feature set that provides antivirus, anti-spyware, and file blocking services. A Plus license is available for each CSC SSM at an additional charge, delivering capabilities such as anti-spam, anti-phishing, URL blocking and filtering, and content control services. Businesses can extend the user capacity of the CSC SSM by purchasing and installing additional user licenses. A detailed listing of these options is shown in Table 8 and in the CSC SSM data sheet.

**Table 8.** Characteristics of Cisco ASA 5500 Series CSC SSMs

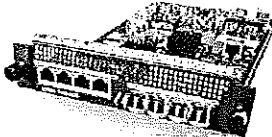
	Cisco ASA 5500 Series CSC-SSM-10	Cisco ASA 5500 Series CSC-SSM-20
		
Supported platforms	<ul style="list-style-type: none"> <li>• Cisco ASA 5510</li> <li>• Cisco ASA 5520</li> </ul>	<ul style="list-style-type: none"> <li>• Cisco ASA 5510</li> <li>• Cisco ASA 5520</li> <li>• Cisco ASA 5540</li> </ul>
<b>Standard and Optional Features</b>		
Standard user license	50 users	500 users
Standard feature set	Antivirus, anti-spyware, file blocking	
Optional user upgrades (total users)	<ul style="list-style-type: none"> <li>• 100 users</li> <li>• 250 users</li> <li>• 500 users</li> </ul>	<ul style="list-style-type: none"> <li>• 750 users</li> <li>• 1000 users</li> </ul>
Optional feature upgrades	Plus License—Adds anti-spam, anti-phishing, URL blocking and filtering, and content control	
<b>Technical Specifications</b>		
Memory	1 GB	2 GB
System flash	256 MB	256 MB
<b>Environmental Operating Ranges</b>		
<b>Operating</b>		
Temperature	32 to 104°F (0 to 40°C)	
Relative humidity	10 to 90 percent, noncondensing	
<b>Nonoperating</b>		
Temperature	-13 to 158°F (-25 to 70°C)	
Power consumption	90W maximum	

<b>Physical Specifications</b>	
Dimensions (H x W x D)	1.70 x 6.80 x 12.25 in. (4.32 x 17.27 x 31.12 cm)
Weight (with power supply)	3.00 lb (1.36 kg)
<b>Regulatory and Standards Compliance</b>	
Safety	UL 1950, CSA C22.2 No. 950, EN 60950 IEC 60950, AS/NZS3260, TS001
Electromagnetic compatibility (EMC)	CE marking, FCC Part 15 Class A, AS/NZS 3548 Class A, VCCI Class A, EN55022 Class A, CISPR22 Class A, EN61000-3-2, EN61000-3-3

### Cisco ASA 5500 Series 4-Port Gigabit Ethernet Module

The Cisco ASA 4-Port Gigabit Ethernet SSM enables businesses to better segment network traffic into separate security zones, providing more granular security for their network environment. These zones can range from the Internet to internal corporate departments/sites to DMZs. This high-performance module supports both copper and optical connection options by including four 10/100/1000 copper RJ-45 ports and four SFP ports. Businesses can choose between copper or fiber connectivity for each of the four ports, providing flexibility for data center, campus, or enterprise edge connectivity (with a maximum of four ports in service concurrently). The module extends the I/O profile of the Cisco ASA 5500 Series to a total of five Fast Ethernet and four Gigabit Ethernet ports on the Cisco ASA 5510, and eight Gigabit Ethernet ports and one Fast Ethernet port on Cisco ASA 5520 and 5540 appliances (Table 9).

**Table 9.** Characteristics of Cisco ASA 5500 Series 4-Port Gigabit Ethernet SSM

<b>Cisco ASA 5500 Series 4-Port GE SSM</b>	
	
<b>Technical Specifications</b>	
Integrated LAN ports	Four 10/100/1000BASE-T (RJ)
Integrated SFP ports	Four (Gigabit Ethernet Optical SFP 1000BASE-SX or LX/LH transceiver supported)
<b>Environmental Operating Ranges</b>	
<b>Operating</b>	
Temperature	32 to 104°F (0 to 40°C)
Relative humidity	5 to 95 percent noncondensing
<b>Nonoperating</b>	
Temperature	-13 to 158°F (-25 to 70°C)
Power consumption	25W maximum
<b>Physical Specifications</b>	
Dimensions (H x W x D)	1.70 x 6.80 x 12.25 in. (4.32 x 17.27 x 31.12 cm)
Weight (with power supply)	2.00 lb (0.91 kg)
<b>Regulatory and Standards Compliance</b>	
Safety	UL 1950, CSA C22.2 No. 950, EN 60950 IEC 60950, AS/NZS3260, TS001
Electromagnetic compatibility (EMC)	CE marking, FCC Part 15 Class A, AS/NZS 3548 Class A, VCCI Class A, EN55022 Class A, CISPR22 Class A, EN61000-3-2, EN61000-3-3



## ORDERING INFORMATION

To place an order, visit the [Cisco Ordering Home Page](#). Table 10 provides ordering information for the Cisco ASA 5500 Series.

Table 10. Ordering Information

Product Name	Part Number
<b>Cisco ASA 5500 Series Firewall Edition Bundles</b>	
Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Triple Data Encryption Standard/Advanced Encryption Standard (3DES/AES) license	ASA5505-BUN-K9
Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Data Encryption Standard (DES) license	ASA5505-K8
Cisco ASA 5505 50-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license	ASA5505-50-BUN-K9
Cisco ASA 5505 Unlimited-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license	ASA5505-UL-BUN-K9
Cisco ASA 5505 Unlimited-User Security Plus Bundle includes 8-port Fast Ethernet switch, 25 IPsec VPN peers, 2 SSL VPN peers, DMZ, stateless Active/Standby high availability, 3DES/AES license	ASA5505-SEC-BUN-K9
Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license	ASA5510-BUN-K9
Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, DES license	ASA5510-K8
Cisco ASA 5510 Security Plus Firewall Edition includes 5 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, Active/Standby high availability, 3DES/AES license	ASA5510-SEC-BUN-K9
Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, 3DES/AES license	ASA5520-BUN-K9
Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, DES license	ASA5520-K8
Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license	ASA5540-BUN-K9
Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license	ASA5540-K8
Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license	ASA5550-BUN-K9
Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license	ASA5550-K8
<b>Cisco ASA 5500 Series IPS Edition Bundles</b>	
Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces	ASA5510-AIP10-K9
Cisco ASA 5520 IPS Edition includes AIP-SSM-10, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface	ASA5520-AIP10-K9
Cisco ASA 5520 IPS Edition includes AIP-SSM-20, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface	ASA5520-AIP20-K9
Cisco ASA 5540 IPS Edition includes AIP-SSM-20, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface	ASA5540-AIP20-K9
<b>Cisco ASA 5500 Series Anti-X Edition Bundles</b>	
Cisco ASA 5510 Anti-X Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces	ASA5510-CSC10-K9
Cisco ASA 5510 Anti-X Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces	ASA5510-CSC20-K9
Cisco ASA 5520 Anti-X Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface	ASA5520-CSC10-K9
Cisco ASA 5520 Anti-X Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface	ASA5520-CSC20-K9

<b>Cisco ASA 5500 Series SSL / IPsec VPN Edition Bundles</b>	
Cisco ASA 5505 SSL / IPsec VPN Edition Includes 10 IPsec VPN peers, 10 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch	ASA5505-SSL10-K9
Cisco ASA 5505 SSL / IPsec VPN Edition Includes 25 IPsec VPN peers, 25 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch, Security Plus license	ASA5505-SSL25-K9
Cisco ASA 5510 SSL / IPsec VPN Edition Includes 250 IPsec VPN peers, 50 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces	ASA5510-SSL50-K9
Cisco ASA 5510 SSL / IPsec VPN Edition Includes 250 IPsec VPN peers, 100 SSL VPN 100 peers, firewall services, 3 Fast Ethernet Interfaces	ASA5510-SSL100-K9
Cisco ASA 5510 SSL / IPsec VPN Edition Includes 250 IPsec VPN peers, 250 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces	ASA5510-SSL250-K9
Cisco ASA 5520 SSL / IPsec VPN Edition Includes 750 IPsec VPN peers, 500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet Interface	ASA5520-SSL500-K9
Cisco ASA 5540 SSL / IPsec VPN Edition Includes 5000 IPsec VPN peers, 1000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet Interface	ASA5540-SSL1000-K9
Cisco ASA 5540 SSL / IPsec VPN Edition Includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet Interface	ASA5540-SSL2500-K9
Cisco ASA 5550 SSL / IPsec VPN Edition Includes 6000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 8 Gigabit Ethernet Interfaces, 1 Fast Ethernet Interface	ASA5550-SSL2500-K9
Cisco ASA 5550 SSL / IPsec VPN Edition Includes 6000 IPsec VPN peers, 5000 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet Interface	ASA5550-SSL5000-K9
<b>Security Services Modules</b>	
Cisco ASA Advanced Inspection and Prevention Security Services Module 10	ASA-SSM-AIP-10-K9=
Cisco ASA Advanced Inspection and Prevention Security Services Module 20	ASA-SSM-AIP-20-K9=
Cisco ASA Content Security and Control Security Services Module 10 with 50-user antivirus/anti-spyware, 1-year subscription	ASA-SSM-CSC-10-K9=
Cisco ASA Content Security and Control Security Services Module 20 with 500-user antivirus/anti-spyware, 1-year subscription	ASA-SSM-CSC-20-K9=
Cisco ASA 4-Port Gigabit Ethernet Security Services Module	SSM-4GE=
<b>Cisco ASA 5500 Series Software</b>	
Cisco ASA Software one-time upgrade for nonsupport customers	ASA-SW-UPGRADE=
<b>Cisco ASA 5500 Series Accessories</b>	
Cisco ASA 5500 Series compact flash, 256 MB	ASA5500-CF-256MB=
Cisco ASA 5500 Series compact flash, 512 MB	ASA5500-CF-512MB=
Cisco ASA 180W AC power supply	ASA-180W-PWR-AC=
Gigabit Ethernet optical SFP connector, 1000BASE-SX short-wavelength transceiver	GLC-SX-MM=
Gigabit Ethernet optical SFP connector, 1000BASE-LX/LH long-wavelength/long-haul transceiver	GLC-LH-SM=

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Visit the [Cisco Software Center](#) to download Cisco ASA Software.

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## FOR MORE INFORMATION

For more information, please visit the following links:

- Cisco ASA 5500 Series Adaptive Security Appliance: <http://www.cisco.com/go/asa>
- Cisco Adaptive Security Device Manager: <http://www.cisco.com/go/asdm>



**Corporate Headquarters**  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

**European Headquarters**  
Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
[www-europe.cisco.com](http://www-europe.cisco.com)  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

**Americas Headquarters**  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-7660  
Fax: 408 527-0883

**Asia Pacific Headquarters**  
Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
[www.cisco.com](http://www.cisco.com)  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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The logo for SWAN, consisting of the word "SWAN" in a bold, sans-serif font, enclosed within a thin circular border.

**Príloha č. 5C**

k Zmluve o poskytovaní elektronických komunikačných služieb

**ZARIADENIE CISCO CATALYST 2950 SERIES SWITCH**



## DATA SHEET

# CISCO CATALYST 2950 SERIES SWITCHES WITH STANDARD IMAGE SOFTWARE

### PRODUCT OVERVIEW

The Cisco<sup>®</sup> Catalyst<sup>®</sup> 2950SX48, 2950T-48, 2950SX-24, 2950-24, and 2950-12 switches, members of the Cisco Catalyst 2950 Series, are standalone, fixed-configuration, managed 10/100 Mbps switches providing basic workgroup connectivity for small to midsize networks. These wire-speed desktop switches come with Standard Image software features and offer Cisco IOS<sup>®</sup> Software functions for basic data, voice, and video services at the edge of the network.

Embedded in all Cisco Catalyst 2950 Series switches is the Cisco Device Manager software, which allows users to easily configure and monitor the switch using a standard Web browser, eliminating the need for more complex terminal emulation programs and knowledge of the command-line interface (CLI). Customers can easily initialize the switch with web-based Cisco Express Setup, without using the CLI. In addition, with Cisco Network Assistant, a standalone network management software, customers can simultaneously configure and troubleshoot multiple Cisco Catalyst desktop switches. Cisco Device Manager, Cisco Express Setup, and Cisco Network Assistant reduce the cost of deployment by enabling less-skilled personnel to set up switches quickly. Furthermore, Cisco Catalyst 2950 Series switches provide extensive management tools using Simple Network Management Protocol (SNMP) network management platforms such as CiscoWorks.

This product line offers two distinct sets of software features and a range of configurations to allow small, midsize, and enterprise branch offices to select the right combination for the network edge. For networks that require additional security, advanced quality of service (QoS), and high availability, Enhanced Image software delivers intelligent services such as rate limiting and security filtering for deployment at the network edge.

The Cisco Catalyst 2950SX-48, 2950T-48, 2950SX-24, 2950-24 and 2950-12 switches (Figures 1–5) are available only with the Standard Image (SI) software for the Cisco Catalyst 2950 Series. They cannot be upgraded to the Enhanced Image (EI) software.

- Cisco Catalyst 2950SX 48 Switch—48 10/100 Mbps ports with two fixed 1000BASE-SX uplinks
- Cisco Catalyst 2950T 48 Switch—48 10/100 Mbps ports with two fixed 10/100/1000BASE-T uplinks
- Cisco Catalyst 2950SX 24 Switch—24 10/100 Mbps ports with two fixed 1000BASE-SX uplinks
- Cisco Catalyst 2950 24 Switch—24 10/100 Mbps ports
- Cisco Catalyst 2950 12 Switch—12 10/100 Mbps ports

Figure 1. Cisco Catalyst 2950-12 Switch

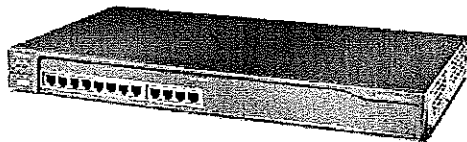


Figure 2. Cisco Catalyst 2950-24 Switch

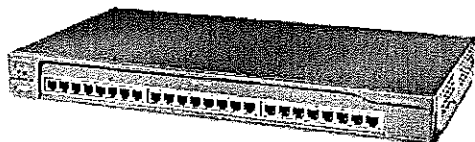


Figure 3. Cisco Catalyst 2950SX-24 Switch

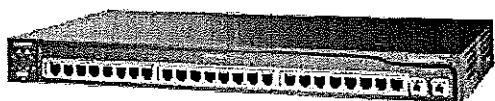


Figure 4. Cisco Catalyst 2950T-48 Switch



Figure 5. Cisco Catalyst 2950SX-48 Switch



These switches provide customers with many connectivity and port-density options. The Cisco Catalyst 2950-12 and Cisco Catalyst 2950-24 switches provide 12 and 24 10/100 Mbps ports, respectively, for edge connectivity. Depending on port-density requirements, customers with gigabit fiber uplink connectivity needs can choose between the Cisco Catalyst 2950SX-24 Switch, which provides 24 10/100 Mbps ports and 2 integrated 1000BASE-SX ports, and the Cisco Catalyst 2950SX-48 Switch, which provides 48 10/100 Mbps ports and 2 integrated 1000BASE-SX ports.

With these integrated ports, customers get an extremely cost-effective solution for delivering gigabit speeds using fiber. These switches are ideal for education and government segments where fiber uplinks are required. For customers that do not need fiber connectivity, the Cisco Catalyst 2950T-48 Switch with 48 10/100 Mbps ports and two integrated 10/100/1000 BASE-T ports is a cost-effective alternative. The 10/100/1000 BASE-T ports can be used for server connectivity or for uplink connectivity to distribution or other switches. Dual ports also provide redundancy and increased availability, as well as provide a cost-effective means for cascading switches and managing them as a cluster. The Cisco Catalyst 2950 Series Intelligent Ethernet switches with Enhanced Image software are fixed-configuration models that bring intelligent services, such as advanced QoS, enhanced security, and high availability to the network edge while maintaining the simplicity of traditional LAN switching. Combining a Cisco Catalyst 2950 Series Intelligent Ethernet Switch with a Cisco Catalyst 3550 Series Switch enables IP routing from the edge to the core of the network. Refer to the Cisco Catalyst 2950 Series Enhanced Image Data Sheet for more information:  
[http://www.cisco.com/en/US/products/hw/switches/ps628/products\\_data\\_sheet09186a00801c1b64.html](http://www.cisco.com/en/US/products/hw/switches/ps628/products_data_sheet09186a00801c1b64.html)

## **NETWORK AVAILABILITY WITH WIRE-SPEED PERFORMANCE IN CONNECTING END STATIONS TO THE LAN**

With a switching fabric of 13.6 Gbps and a maximum forwarding bandwidth of 13.6 Gbps, Cisco Catalyst 2950 Series switches deliver wire-speed performance on all ports in connecting end stations and users to the company LAN. Cisco Catalyst 2950 Series switches with basic services support performance-boosting features such as Cisco Fast EtherChannel<sup>®</sup> to provide high-performance bandwidth between Cisco Catalyst switches, routers, and servers.

## **NETWORK SECURITY**

Cisco Catalyst 2950 Series switches offer enhanced data security through a wide range of security features. These features allow customers to provide network security based on users or MAC addresses. The security enhancements are available free by downloading the latest software for the Cisco Catalyst 2950 Series switches.

Secure Shell version 2 (SSHv2) protects information from being eavesdropped or being tampered with by encrypting information being passed on the network, thereby guarding administrative information. Private VLAN Edge isolates ports on a switch, ensuring that traffic travels directly from the entry point to the aggregation device through a virtual path and cannot be directed to another port. In addition, for authentication of users with a TACACS+ or a RADIUS server, 802.1x provides port-level security. Simple Network Management Protocol Version 3 (SNMPv3) (non-cryptographic) monitors and controls network devices as well as manages configurations, performance, collection of statistics, and security.

For authentication of users with a Terminal Access Controller Access Control System (TACACS+) or RADIUS server, 802.1x provides port-level security. 802.1x, in conjunction with a RADIUS server, allows for dynamic port-based user authentication. 802.1x-based user authentication can be extended to dynamically assign a VLAN based on a specific user, regardless of where they connect on the network. With 802.1x with Guest VLAN, guests are allowed access to the Internet via the Guest VLAN but cannot access the customer's internal network. This intelligent adaptability allows IT departments to offer greater flexibility and mobility to their stratified user populations. By combining access control and user profiles with secure network connectivity, services, and applications, enterprises can more effectively manage user mobility and drastically reduce the overhead associated with granting and managing access to network resources.

With the Cisco Catalyst 2950SX-48, 2950T-48, 2950SX-24, 2950-24, and 2950-12 switches, network managers can make ports and consoles highly secure. MAC-address-based port-level security prevents unauthorized stations from accessing the switch. Multilevel access security on the switch console and the Web management interface prevents unauthorized users from accessing or altering switch configurations and can be implemented using an internal user database on each switch or a centrally administered TACACS+ or RADIUS server. Using 802.1x in conjunction with a RADIUS server allows dynamic port-based user authentication. In addition, 802.1x can coexist with port security on a per-port basis. Security features can be deployed using Cisco Network Assistant software security wizards, which ease the deployment of security features that restrict user access to a server or portion of the network or restrict the applications used in certain areas of the network.

## **NETWORK CONTROL**

Cisco Catalyst 2950SX-48, 2950T-48, 2950SX-24, 2950-24, and 2950-12 switches deliver LAN-edge QoS, supporting two modes of reclassification. One mode—based on the IEEE 802.1p standard—honors the class-of-service (CoS) value at the ingress point and assigns the packet to the appropriate queue. In the second mode, packets can be reclassified based on a default CoS value assigned to the ingress port by the network administrator. In the case of frames that arrive without a CoS value (such as untagged frames), these Cisco Catalyst 2950 Series switches support classification based on a default CoS value per port assigned by the network administrator. After the frames have been classified or reclassified using one of the above modes, they are assigned to the appropriate queue at the egress. Cisco Catalyst 2950 Series switches support four egress queues, which allow the network administrator to be more discriminating and granular in assigning priorities for the various applications on the LAN. Strict Priority Scheduling configuration ensures that time-sensitive applications, such as voice, always follow an expedited path through the switch fabric. Weighted Round Robin (WRR) scheduling, another significant enhancement, ensures that lower-priority traffic receives attention without comprising the priority settings administered by a network manager. These features allow network administrators to prioritize mission-critical, time-sensitive



traffic, such as voice (IP telephony traffic), enterprise resource planning (Oracle, SAP, etc.), and computer-assisted design and manufacturing, over less time-sensitive applications such as FTP or e-mail (Simple Mail Transfer Protocol).

## NETWORK AVAILABILITY

To provide efficient use of resources for bandwidth-hungry applications like multicasts, Cisco Catalyst 2950 Series switches support Internet Group Management Protocol Version 3 (IGMPv3) snooping in hardware. Through the support and configuration of IGMP snooping through the Cisco Network Assistant software, these Cisco Catalyst 2950 Series switches deliver outstanding performance and ease of use in administering and managing multicast applications on the LAN.

The IGMPv3 snooping feature allows the switch to "listen in" on the IGMP conversation between hosts and routers. When a switch hears an IGMP join request from a host for a given multicast group, the switch adds the host's port number to the group destination address list for that group. And when the switch hears an IGMP leave request, it removes the host's port from the content-addressable memory (CAM) table entry.

Multicast VLAN Registration (MVR) is designed for applications using wide-scale deployment of multicast traffic across an Ethernet ring-based service provider network (for example, the broadcast of multiple television channels over a service-provider network). MVR allows a subscriber on a port to subscribe and unsubscribe to a multicast stream on the networkwide multicast VLAN.

Per VLAN Spanning Tree Plus (PVST+) allows users to implement redundant uplinks while also distributing traffic loads across multiple links. This is not possible with standard Spanning Tree Protocol implementations. Cisco UplinkFast technology ensures immediate transfer to the secondary uplink, much better than the traditional 30- to 60-second convergence time. This is yet another enhancement of the Spanning Tree Protocol implementation. An additional feature that enhances performance is voice VLAN. This feature allows network administrators to assign voice traffic to a VLAN dedicated to IP telephony, thereby simplifying phone installations and providing easier network traffic administration and troubleshooting.

## NETWORK MANAGEMENT

Customers can configure one switch at a time with the embedded Cisco Device Manager, or configure and troubleshoot multiple switches with Cisco Network Assistant, a free standalone network management software application optimized for LANs of small and medium-sized businesses with up to 250 users. Cisco Device Manager offers a simple and intuitive GUI interface for configuring and monitoring the switch. The software is Web-based and embedded in Cisco Catalyst 3750, 3650, 3550, 2970, 2950, and 2940 Switches. Cisco Express Setup simplifies the switch initialization. Users now have the option to set up the switch through a Web browser, eliminating the need for more complex terminal emulation programs and knowledge of the CLI. Cisco Device Manager and Cisco Express Setup reduce the cost of deployment by enabling less-skilled personnel to quickly and simply set up switches.

With Cisco Network Assistant, customers can configure multiple ports and switches simultaneously, perform software updates across multiple switches at once, and copy configurations to other switches for rapid network deployments. Bandwidth graphs and link reports provide useful diagnostic information, and the topology map gives network administrators a quick view of the network status. Cisco Network Assistant supports a wide range of Cisco Catalyst intelligent switches from Cisco Catalyst 2950 through Cisco Catalyst 4506. Through a user-friendly GUI, users can configure and manage a wide array of switch functions and start the device manager of Cisco routers and Cisco wireless access points

The Cisco Network Assistant Software Guide Mode leads the user step-by-step through the configuration of advanced features and provides enhanced online help for context-sensitive assistance. Cisco AVVID (Architecture for Voice, Video and Integrated Data) Wizards provide automated configuration of the switch to optimally support video streaming or video conferencing, voice over IP (VoIP), and mission-critical applications. In addition, Smartports offers a set of verified feature macros per connection type in an easy-to-apply manner. With these macros, users can consistently and reliably configure essential security, availability, quality of service, and manageability features recommended for Cisco Business Ready Campus solutions with minimal effort and expertise. These Wizards and Smartports can save hours of time for network administrators, eliminate human errors, and ensure that the configuration of the switch is optimized for these applications.

In addition to Cisco Network Assistant, Cisco Catalyst 2950 Series switches provide extensive management tools using SNMP network management platforms such as CiscoWorks. Managed with CiscoWorks, Cisco Catalyst family switches can be configured and managed to deliver end-to-end device, VLAN, traffic, and policy management. Coupled with CiscoWorks, Cisco Resource Manager Essentials, a Web-based management tool, offers automated inventory collection, software deployment, easy tracking of network changes, views into device availability, and quick isolation of error conditions.

## PRODUCT FEATURES AND BENEFITS

Feature	Benefit
<b>Availability</b>	
<i>Superior Redundancy for Fault Backup</i>	<ul style="list-style-type: none"> <li>• IEEE 802.1D Spanning Tree Protocol support for redundant backbone connections and loop-free networks simplifies network configuration and improves fault tolerance.</li> <li>• IEEE 802.1w Rapid Spanning-Tree Protocol (RSTP) provides rapid convergence of the spanning tree, independent of spanning-tree timers.</li> <li>• Per VLAN Rapid Spanning Tree (PVRST+) allows rapid spanning-tree reconvergence on a per-VLAN spanning-tree basis, without requiring the implementation of spanning-tree instances.</li> <li>• Support for Cisco Spanning Tree Protocol enhancements such as UplinkFast, BackboneFast, and PortFast technologies ensures quick failover recovery and enhances overall network stability and availability.</li> <li>• Support for Cisco's optional RPS 675, 675-watt redundant AC power system, which provides a backup power source for one of six switches, for improved fault tolerance and network uptime.</li> <li>• Unidirectional link detection (UDLD) and aggressive UDLD detect and disable unidirectional links on fiber-optic interfaces caused by incorrect fiber-optic wiring or port faults.</li> </ul>
<i>Integrated Cisco IOS Software Features for Bandwidth Optimization</i>	<ul style="list-style-type: none"> <li>• Bandwidth aggregation through Cisco EtherChannel technology enhances fault tolerance and offers higher-speed aggregated bandwidth between switches to routers and individual servers. Port Aggregation Protocol (PagP) is available to simplify configuration.</li> <li>• VLAN1 minimization allows VLAN1 to be disabled on any individual VLAN trunk link.</li> <li>• IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) allows a spanning-tree instance per VLAN, enabling Layer 2 load sharing on redundant links.</li> <li>• Per-port broadcast, multicast, and unicast storm control prevents faulty end stations from degrading overall system performance.</li> <li>• Per VLAN Spanning Tree Plus (PVST+) allows for Layer 2 load sharing on redundant links to efficiently use the extra capacity inherent in a redundant design.</li> <li>• VLAN Trunking Protocol (VTP) pruning limits bandwidth consumption on VTP trunks by flooding broadcast traffic only on trunk links required to reach the destination devices. Dynamic Trunking Protocol (DTP) enables dynamic trunk configuration across all ports in the switch.</li> <li>• IGMPv3 snooping provides for fast client joins and leaves of multicast streams and limits bandwidth-intensive video traffic to the requestors. MVR, IGMP filtering, and fast-join and immediate leave are available as enhancements. IGMP Snooping time can be adjusted to optimize the performance of multicast data flows.</li> </ul>
<b>Security</b>	
<i>Networkwide Security Features</i>	<ul style="list-style-type: none"> <li>• A private VLAN edge provides security and isolation between ports on a switch, ensuring that voice traffic travels directly from its entry point to the aggregation device through a virtual path and cannot be directed to a different port.</li> <li>• Support for the 802.1x standard allows users to be authenticated regardless of which LAN ports they are accessing, and it provides unique benefits to customers who have a large base of mobile (wireless) users accessing the network. <ul style="list-style-type: none"> <li>– 802.1x with voice VLAN permits an IP phone access to the voice VLAN regardless of the authorized or unauthorized state of the port.</li> <li>– 802.1x with Port Security authenticates the port and manages network access for all MAC addresses, including</li> </ul> </li> </ul>

**Feature****Benefit**

- that of the client.
- IEEE 802.1x with Guest VLAN allows guests without 802.1x clients to have limited network access on the Guest VLAN.
- IEEE 802.1x with VLAN assignment allows a dynamic VLAN assignment for a specific user regardless of where the user is connected.
- SSHv2 provides network security by encrypting administrator traffic during Telnet sessions. SSHv2 requires a special cryptographic software image due to US export restrictions
- Port Security secures the access to a port based on the MAC address of a user's device. The aging feature removes the MAC address from the switch after a specific time to allow another device to connect to the same port.
- MAC Address Notification allows administrators to be notified of new users added or removed from the network.
- Multilevel security on console access prevents unauthorized users from altering the switch configuration.
- Trusted Boundary provides the ability to trust the QoS priority settings if an IP phone is present and disable the trust setting in the event that the IP phone is removed, thereby preventing a rogue user from overriding prioritization policies in the network.
- TACACS+ and RADIUS authentication enables centralized control of the switch and restricts unauthorized users from altering the configuration.
- SPAN support of Intrusion Detection Systems (IDSs) to monitor, repel, and report network security violations
- SNMPv3 (non-crypto) monitors and controls network devices, manages configurations, statistics collection, performance, and security.
- Cisco Network Assistant software security wizards ease the deployment of security features for restricting user access to a server, a portion of the network, or access to the network.

**Quality of Service****Layer 2 QoS**

- Support for reclassifying frames is based either on 802.1p class-of-service (CoS) value or default CoS value per port assigned by network manager.
- Four queues per egress port are supported in hardware.
- The Weighted Round Robin (WRR) scheduling algorithm ensures that low-priority queues are not starved.
- Strict priority queue configuration via Strict Priority Scheduling ensures that time-sensitive applications such as voice always follow an expedited path through the switch fabric.

**Management****Superior  
Manageability**

- SNMP and Telnet interface support delivers comprehensive in-band management, and a CLI management console provides detailed out-of-band management.
- An embedded Remote Monitoring (RMON) software agent supports four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis.
- A Switched Port Analyzer (SPAN) port can mirror traffic from one or many ports to another port for monitoring all nine RMON groups with an RMON probe or network analyzer.
- Trivial File Transfer Protocol (TFTP) reduces the cost of administering software upgrades by downloading from a centralized location.
- Network Timing Protocol (NTP) provides an accurate and consistent timestamp to all switches within the intranet.
- Layer 2 traceroute eases troubleshooting by identifying the physical path that a packet takes from the source device to a destination device.
- Multifunction LEDs per port for port status, half-duplex/full-duplex, 10BASE-T/100BASE-TX/1000BASE-T indication, as well as switch-level status LEDs for system, redundant power supply, and bandwidth utilization provide a comprehensive and convenient visual management system.
- Crash information support enables a switch to generate a crash file for improved troubleshooting.

<b>Feature</b>	<b>Benefit</b>
	<ul style="list-style-type: none"> <li>• Show-interface-capabilities provide information about the configuration capabilities of any interface.</li> <li>• Response Time Monitoring (RTTMON) MIB allows users to monitor network performance between a Cisco Catalyst switch and a remote device.</li> </ul>
<b>Cisco Network Assistant Software</b>	<ul style="list-style-type: none"> <li>• Cisco Network Assistant Software is a free, standalone network management application software that simplifies the administration of networks of up to 250 users. It supports a wide range of Cisco Catalyst intelligent switches from Cisco Catalyst 2950 through Cisco Catalyst 4506. With Cisco Network Assistant, users can manage Cisco Catalyst switches plus launch the device managers of Cisco integrated services routers (ISRs) and Cisco Aironet WLAN access points by simply clicking on its icon in the topology map.</li> <li>• Cisco AVVID (Architecture for Voice, Video and Integrated Data) wizards use just a few user inputs to automatically configure the switch to optimally handle different types of traffic: voice, video, multicast, and high-priority data.</li> <li>• One-click software upgrades can be performed across the entire cluster simultaneously, and configuration cloning enables rapid deployment of networks.</li> <li>• Cisco Network Assistant Guide Mode helps users configure powerful advanced features by providing step-by-step instructions.</li> <li>• Cisco Network Assistant provides enhanced online help for context-sensitive assistance.</li> <li>• Easy-to-use graphical interface provides both a topology map and front-panel view of the switches.</li> <li>• Multidevice- and multiport-configuration capabilities allow network administrators to save time by configuring features across multiple switches and ports simultaneously.</li> <li>• User-personalized interface allows users to modify polling intervals, table views, and other settings within Cisco Network Assistant and retain these settings the next time they use Cisco Network Assistant.</li> <li>• Alarm notification provides automated e-mail notification of network errors and alarm thresholds.</li> </ul>
<b>Support for CiscoWorks</b>	<ul style="list-style-type: none"> <li>• Manageability is enabled through CiscoWorks network management software on a per-port and per-switch basis, providing a common management interface for Cisco routers, switches, and hubs.</li> <li>• SNMPv1, v2, and v3 (non-cryptographic) and Telnet interface support delivers comprehensive in-band management, and a command-line-interface (CLI) management console provides detailed out-of-band management.</li> <li>• Cisco Discovery Protocol (CDP) versions 1 and 2 enable a CiscoWorks network management station to automatically discover the switch in a network topology.</li> <li>• Support is provided by the CiscoWorks LAN Management Solution.</li> </ul>
<b>Ease of Use and Deployment</b>	<ul style="list-style-type: none"> <li>• Cisco Device Manager is an embedded web-based software that allows the customer to easily configure and troubleshoot the switch, eliminating the need for more complex terminal emulation programs and CLI knowledge, and reducing the cost of deployment by enabling less-skilled personnel to quickly and simply set up switches.</li> <li>• Cisco Express Setup allows the customer to quickly and easily initialize a switch with a web browser</li> <li>• Smartports offers a set of verified feature macros per connection type in an easy-to-apply manner. With these macros, users can consistently and reliably configure essential security, availability, quality of service, and manageability features recommended for Cisco Business Ready Campus solutions with minimal effort and expertise.</li> <li>• Auto-configuration eases deployment of switches in the network by automatically configuring multiple switches across a network using a bootp server.</li> <li>• Autosensing on each port detects the speed of the attached device and automatically configures the port for 10 or 100 Mbps operation, easing the deployment of the switch in mixed-speed environments.</li> <li>• Auto-negotiating on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth.</li> <li>• Link Aggregation Control Protocol (LACP) allows the creation of Ethernet channeling with devices that conform to IEEE 802.3ad. This is similar to Cisco EtherChannel and PagP.</li> <li>• Cisco Discovery Protocol versions 1 and 2 enable a CiscoWorks network management station to automatically discover the switch in a network topology.</li> <li>• Cisco VTP supports dynamic VLANs and dynamic trunk configuration across all switches.</li> </ul>

Feature	Benefit
	<ul style="list-style-type: none"> <li>• Support for dynamic VLAN assignment through implementation of VLAN Membership Policy Server (VMPS) client functions provides flexibility in assigning ports to VLANs.</li> <li>• Voice VLAN simplifies telephony installations by keeping voice traffic on a separate VLAN for easier network administration and troubleshooting.</li> <li>• The default configuration stored in Flash memory ensures that the switch can be quickly connected to the network and can pass traffic with minimal user intervention.</li> </ul>

### PRODUCT SPECIFICATIONS

Feature	Description
Performance	<ul style="list-style-type: none"> <li>• 13.6-Gbps switching fabric (Catalyst 2950T-48-SI and 2950SX-48-SI)</li> <li>• 8.8-Gbps switching fabric (Catalyst 2950SX-24, 2950-24, 2950-12)</li> <li>• Cisco Catalyst 2950-12: 2.4 Gbps maximum forwarding bandwidth</li> <li>• Cisco Catalyst 2950-24: 4.8 Gbps maximum forwarding bandwidth</li> <li>• Cisco Catalyst 2950SX-24: 8.8 Gbps maximum forwarding bandwidth</li> <li>• Cisco Catalyst 2950T-48: 13.6 Gbps maximum forwarding bandwidth</li> <li>• Cisco Catalyst 2950SX-48: 13.6 Gbps maximum forwarding bandwidth (Forwarding rates based on 64 byte packets)</li> <li>• Cisco Catalyst 2950-12: 1.8 Mpps wire-speed forwarding rate</li> <li>• Cisco Catalyst 2950-24: 3.6 Mpps wire-speed forwarding rate</li> <li>• Cisco Catalyst 2950SX-24: 6.6 Mpps wire-speed forwarding rate</li> <li>• Cisco Catalyst 2950T-48: 10.1 Mpps wire-speed forwarding rate</li> <li>• Cisco Catalyst 2950SX-48: 10.1 Mpps wire-speed forwarding rate</li> <li>• 8 MB packet buffer memory architecture shared by all ports</li> <li>• 16 MB DRAM and 8 MB Flash memory</li> <li>• Configurable up to 8000 MAC addresses</li> </ul>

Feature	Description/Part Numbers
Management	<ul style="list-style-type: none"> <li>• BRIDGE-MIB</li> <li>• CISCO-2900-MIB</li> <li>• CISCO-BULK-FILE-MIB</li> <li>• CISCO-CDP-MIB</li> <li>• CISCO-CLASS-BASED-QOS-MIB</li> <li>• CISCO-CONFIG-COPY-MIB</li> <li>• CISCO-CONFIG-MAN-MIB</li> <li>• CISCO-ENVMON-MIB</li> <li>• CISCO-FLASH-MIB</li> <li>• CISCO-FTP-CLIENT-MIB</li> <li>• CISCO-IMAGE-MIB</li> <li>• CISCO-IPMROUTE-MIB</li> <li>• CISCO-MAC-NOTIFICATION-MIB</li> <li>• CISCO-MEMORY-POOL-MIB</li> <li>• CISCO-PAGP-MIB</li> <li>• CISCO-PING-MIB</li> </ul>

Feature	Description/Part Numbers
	<ul style="list-style-type: none"> <li>• CISCO-PORT-SECURITY-MIB</li> <li>• CISCO-PROCESS-MIB</li> <li>• CISCO-PRODUCTS-MIB</li> <li>• CISCO-RTTMON-MIB</li> <li>• CISCO-SMI</li> <li>• CISCO-STACKMAKER-MIB</li> <li>• CISCO-STP-EXTENSIONS-MIB</li> <li>• CISCO-SYSLOG-MIB</li> <li>• CISCO-TC</li> <li>• CISCO-TCP-MIB</li> <li>• CISCO-VLAN-MEMBERSHIP-MIB</li> <li>• CISCO-VTP-MIB</li> <li>• ENTITY-MIB</li> <li>• IANAifType-MIB</li> <li>• IF-MIB (RFC 1573)</li> <li>• OLD-CISCO-CHASSIS-MIB</li> <li>• OLD-CISCO-CPU-MIB</li> <li>• OLD-CISCO-INTERFACES-MIB</li> <li>• OLD-CISCO-IP-MIB</li> <li>• OLD-CISCO-MEMORY-MIB</li> <li>• OLD-CISCO-SYSTEM-MIB</li> <li>• OLD-CISCO-TCP-MIB</li> <li>• OLD-CISCO-TS-MIB</li> <li>• RFC1213-MIB (MIB-II)</li> <li>• RFC1398-MIB (ETHERNET-MIB)</li> <li>• RMON-MIB (RFC 1757)</li> <li>• RS-232-MIB</li> <li>• SNMPv2-MIB</li> <li>• SNMPv2-SMI</li> <li>• SNMPv2-TC</li> <li>• TCP-MIB</li> <li>• UDP-MIB</li> </ul>
Standards	<ul style="list-style-type: none"> <li>• IEEE 802.1x support</li> <li>• IEEE 802.3x full duplex on 10BASE-T and 100BASE-TX ports</li> <li>• IEEE 802.1D Spanning-Tree Protocol</li> <li>• IEEE 802.1p class-of-service (CoS) prioritization</li> <li>• IEEE 802.1Q VLAN</li> <li>• IEEE 802.1s</li> <li>• IEEE 802.1w</li> <li>• IEEE 802.3 10BASE-T specification</li> <li>• IEEE 802.3u 100BASE-TX specification</li> <li>• IEEE 802.3ad</li> </ul>

Feature	Description/Part Numbers
Connectors and Cabling	<ul style="list-style-type: none"> <li>• IEEE 802.3z 1000BASE-X specification</li> <li>• 10BASE-T ports: RJ-45 connectors, two-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling</li> <li>• 100BASE-TX ports: RJ-45 connectors; four-pair Category 5 UTP cabling</li> <li>• 1000BASE-SX ports: MT-RJ connectors, up to 1800 feet (550 meters) cable distance for 50/125 or up to 900 ft (275 m) cable distance for 62.5/125 micron multimode fiber-optic cabling</li> <li>• Management console port: 8-pin RJ-45 connector, RJ-45-to-DB9 adapter cable for PC connections; for terminal connections, use RJ-45-to-DB25 female data-terminal-equipment (DTE) adapter (can be ordered separately, Cisco part number ACS-DSBUASYN=)</li> </ul>
MT-RJ Patch Cables for Cisco Catalyst 2950SX 24 Switch	<p><i>Type of cable, Cisco part number:</i></p> <ul style="list-style-type: none"> <li>• 1-meter MT-RJ-to-SC multimode cable, CAB-MTRJ-SC-MM-1M</li> <li>• 3-meter MT-RJ-to-SC multimode cable, CAB-MTRJ-SC-MM-3M</li> <li>• 5-meter MT-RJ-to-SC multimode cable, CAB-MTRJ-SC-MM-5M</li> <li>• 1-meter MT-RJ-to-ST multimode cable, CAB-MTRJ-ST-MM-1M</li> <li>• 3-meter MT-RJ-to-ST multimode cable, CAB-MTRJ-ST-MM-3M</li> <li>• 5-meter MT-RJ-to-ST multimode cable, CAB-MTRJ-ST-MM-5M</li> </ul>
Power Connectors	<p>Customers can provide power to a switch by using the internal power supply, the Cisco RPS 675 Redundant Power System. The connectors are located at the back of the switch.</p> <ul style="list-style-type: none"> <li>• Internal power supply connector <ul style="list-style-type: none"> <li>– The internal power supply is an auto-ranging unit.</li> <li>– The internal power supply supports input voltages between 100 and 240 VAC.</li> <li>– Use the supplied AC power cord to connect the AC power connector to an AC power outlet.</li> </ul> </li> <li>• Cisco RPS 675 connector <ul style="list-style-type: none"> <li>– The connector offers connection for an optional Cisco RPS 675 that uses AC input and supplies DC output to the switch.</li> <li>– The connector offers a 675W redundant power system that supports one of up to six external network devices and provides power to one failed device at a time.</li> <li>– The connector automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic.</li> <li>– Attach only the Cisco RPS 675 (Model PWR675-AC-RPS-NI=) to the redundant power supply receptacle with this connector.</li> </ul> </li> </ul>
Indicators	<ul style="list-style-type: none"> <li>• Per-port status LEDs: link integrity, disabled, activity, speed, and full-duplex indications</li> <li>• System status LEDs: system, RPS, and bandwidth-utilization indications</li> </ul>
Dimensions and Weight (H x W x D)	<ul style="list-style-type: none"> <li>• 1.72 x 17.5 x 9.52 in. (4.36 x 44.45 x 24.18 cm) (Cisco Catalyst 2950SX-24, 2950-24, 2950-12)</li> <li>• 1.72 x 17.5 x 13 in. (4.36 x 44.45 x 33.02 cm) (Cisco Catalyst 2950SX-48, 2950T-48)</li> <li>• 1 RU high (1.72 in./4.36 cm)</li> <li>• 6.5 lb (3.0 kg) (Cisco Catalyst 2950SX-24, 2950-24, 2950-12)</li> <li>• 10.6 lb (4.8 kg) (Cisco Catalyst 2950SX-48, 2950T-48)</li> </ul>

<b>Feature</b>	<b>Description/Part Numbers</b>
<b>Environmental Ranges</b>	<ul style="list-style-type: none"> <li>• Operating temperature: 32 to 113°F (0 to 45°C)</li> <li>• Storage temperature: -13 to 158°F (-25 to 70°C)</li> <li>• Operating relative humidity: 10-85% (non-condensing)</li> <li>• Operating altitude: Up to 10,000 ft (3000 m)</li> <li>• Storage altitude: Up to 15,000 ft (4500 m)</li> </ul>
<b>Power Requirements</b>	<ul style="list-style-type: none"> <li>• Power consumption: 30W (maximum), 102 BTUs per hour (Cisco Catalyst 2950SX-24, 2950-24, 2950-12)</li> <li>• Power consumption: 45W (maximum), 154 BTUs per hour (Cisco Catalyst 2950T-48, 2950SX-48)</li> <li>• AC input voltage: 100 to 127, 200 to 240 VAC (auto-ranging)</li> <li>• AC input frequency: 47 to 63 Hz</li> <li>• DC input voltages for Cisco RPS 675 and Cisco RPS 300: +12V at 4.5A</li> </ul>
<b>Acoustic Noise</b>	<p>ISO 7770, bystander position, operating to an ambient temperature of 86°F (30°C):</p> <ul style="list-style-type: none"> <li>• WS-C2950-24, WS-C2950-12, WS-C2950SX-24: 46 dBa</li> <li>• WS-C2950T-48-SI, WS-C2950SX-48-SI: 48 dBa</li> </ul>
<b>Predicted Mean Time Between Failure</b>	<ul style="list-style-type: none"> <li>• 398,240 hours (Cisco Catalyst 2950-24)</li> <li>• 482,776 hours (Cisco Catalyst 2950-12)</li> <li>• 480,346 hours (Cisco Catalyst 2950SX-24)</li> <li>• 268,876 hours (Cisco Catalyst 2950T-48-SI)</li> <li>• 274,916 hours (Cisco Catalyst 2950SX-48-SI)</li> </ul>

**Regulatory Agency Approvals**

<b>Safety</b>	<ul style="list-style-type: none"> <li>• UL 60950/CSA 22.2 No. 950</li> </ul>
<b>Certifications</b>	<ul style="list-style-type: none"> <li>• IEC 60950/EN 60950</li> <li>• AS/NZS 3260, TS001</li> <li>• CE Marking</li> </ul>
<b>Electromagnetic Emissions</b>	<ul style="list-style-type: none"> <li>• FCC Part 15 Class A</li> <li>• EN 55022: 1998 (CISPR 22) Class A</li> </ul>
<b>Certifications</b>	<ul style="list-style-type: none"> <li>• EN 55022: 1998 (CISPR 22)</li> <li>• VCCI Class A</li> <li>• AS/NZS 3548 Class A</li> <li>• CE Marking</li> <li>• CNS 13438 Class A</li> <li>• CLEI Code</li> <li>• MIC</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• Lifetime limited warranty</li> </ul>



## SERVICE AND SUPPORT

The services and support programs described here are available as part of the Cisco Desktop Switching Service and Support solution and are available directly from Cisco Systems® and through resellers.

Service and Support	Features	Benefits
<b>Advanced Services</b>		
<b>Total Implementation Solutions (TIS)</b> — Available direct from Cisco	<ul style="list-style-type: none"><li>• Project management</li><li>• Site survey, configuration deployment</li><li>• Installation, test, and cutover</li></ul>	<ul style="list-style-type: none"><li>• Supplements existing staff</li><li>• Ensures that functions meet needs</li><li>• Mitigates risk</li></ul>
<b>Packaged Total Implementation Solutions (Packaged TIS)</b> —Available through resellers	<ul style="list-style-type: none"><li>• Training</li><li>• Major moves, adds, changes</li><li>• Design review and product staging</li></ul>	
<b>Technical Support Services</b>		
<b>Cisco SMARTnet® services and Cisco SMARTnet Onsite services</b> —Available direct from Cisco	<ul style="list-style-type: none"><li>• Around-the-clock access to software updates</li><li>• Web access to technical repositories</li><li>• Telephone support through the Technical Assistance Center</li></ul>	<ul style="list-style-type: none"><li>• Enables proactive or expedited issue resolution</li><li>• Lowers cost of ownership by using Cisco expertise and knowledge</li></ul>
<b>Packaged Cisco SMARTnet services</b> —Available through resellers	<ul style="list-style-type: none"><li>• Advance replacement of hardware parts</li></ul>	<ul style="list-style-type: none"><li>• Minimizes network downtime</li></ul>

## ORDERING INFORMATION

Model Numbers	Configuration
WS-C2950-12	<ul style="list-style-type: none"><li>• 12 10/100 Mbps ports</li><li>• 1-RU standalone, fixed-configuration, managed 10/100 Mbps switch</li><li>• Standard Image (SI) Software</li></ul>
WS-C2950-24	<ul style="list-style-type: none"><li>• 24 10/100 Mbps ports</li><li>• 1-RU standalone, fixed-configuration, managed 10/100 Mbps switch</li><li>• Standard Image (SI) Software</li></ul>
WS-C2950SX-24	<ul style="list-style-type: none"><li>• 24 10/100 Mbps ports with two fixed 1000BASE-SX uplinks</li><li>• 1-RU standalone, fixed-configuration, managed 10/100 Mbps switch</li><li>• Standard Image (SI) Software</li></ul>
WS-C2950T-48-SI	<ul style="list-style-type: none"><li>• 48 10/100 Mbps ports with two fixed 10/100/1000BASE-T uplinks</li><li>• 1-RU standalone, fixed-configuration, managed 10/100 Mbps switch</li><li>• Standard Image (SI) Software</li></ul>
WS-C2950SX-48-SI	<ul style="list-style-type: none"><li>• 48 10/100 Mbps ports with two fixed 1000BASE-SX uplinks</li><li>• 1-RU standalone, fixed-configuration, managed 10/100 Mbps switch</li><li>• Standard Image (SI) Software</li></ul>

## FOR MORE INFORMATION

For more information about Cisco products, contact:

- United States and Canada: 800 553-NETS (6387)
- Europe: 32 2 778 4242
- Australia: 612 9935 4107
- Other: 408 526-7209
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### Corporate Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

### European Headquarters

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
[www-europe.cisco.com](http://www-europe.cisco.com)  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

### Americas Headquarters

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
[www.cisco.com](http://www.cisco.com)  
Tel: 408 526-7660  
Fax: 408 527-0883

### Asia Pacific Headquarters

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
[www.cisco.com](http://www.cisco.com)  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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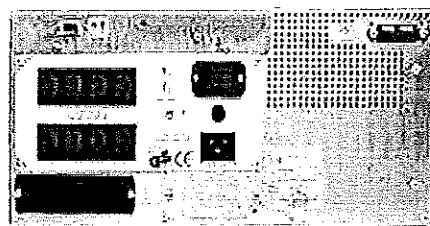
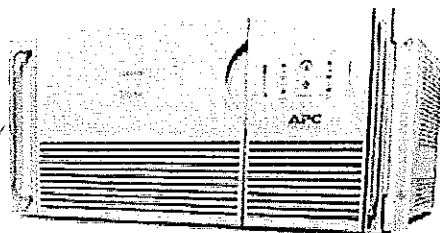


**Príloha č. 5D**  
k Zmluve o poskytovaní elektronických komunikačných služieb

**ZARIADENIE APC SMART-UPS XL 2200VA RM 5U 230V**



APC Smart-UPS  
XL 2200VA RM 5U  
230V  
Part Number:  
SU2200RMXLINET



## Výstup

Výstupní výkon	1600W / 2200 VA
Maximální nastavitelný výkon	1600W / 2200 VA
Jmenovité výstupní napětí	230V
Poznámka k výstupnímu napětí	Jmenovité výstupní napětí lze nastavit na 220 : 230 nebo 240 V
Zkreslení výstupního napětí	Méně než 5 % při plném zatížení
Výstupní kmitočet (synchr. se sítí)	47 - 53 Hz, nominální frekvence 50 Hz, 57 - 63 Hz, nominální frekvence 60 Hz
Koeficient amplitudy	až 5 : 1
Druh průběhu	Sinusoida
Připojení výstupu	(8) IEC 320 C13 (1) IEC 320 C19 (2) IEC Jumpers



## Vstup

Jmenovité vstupní napětí	230V
Vstupní kmitočet	50/60 Hz +/- 3 Hz (autodetekce)
Typ připojení vstupu	IEC-320 C14
Rozsah vstupního napětí pro napájení z rozvodné sítě	174 - 286V
Pro napájení z rozvodné sítě lze upravit rozsah vstupního napětí.	168 - 302V

## Baterie a doba běhu

Typ baterie	Bezúdržbový olověný zatavený akumulátor se suspendovaným elektrolytem: neteče
Typická doba nabíjení	3 hod.

Náhradní baterie	<u>RBC11</u>
Počet bateriových modulů	1
Typická doba zálohování při polovičním zatížení	34.3 minut (800 W)
Typická doba zálohování při plném zatížení	9.7 minut (1600 W)
Tabulka doby chodu	<u>Smart-UPS XL</u>
Možnosti prodloužení doby chodu pro	<u>APC Smart-UPS XL 2200VA RM 5U 230V</u>

## Komunikace a správa

Port rozhraní	DB-9 RS-232, SmartSlot
Množství rozhraní šachet SmartSlot™	1
Řídicí panel	Luminiscenční diody zobrazují stav zařízení, zatížení a stav baterií: ukazatel napájení ze sítě : napájení z baterie : vyměnit baterii : přetížení
Zvukové upozornění	Upozornění na stav, kdy je systém napájen z baterie : zřetelné upozornění na nízkou kapacitu baterie : nastavitelná doba
Nouzové vypínání	Volitelné

## Přepět'ová ochrana a filtrace

Energie rázu	480 Joules
Filtrace	Nepřetržitá vícepólová filtrace šumu : propuštěné přepětí podle IEEE 0,3 % : nulová doba odezvy na klíčování : odpovídá UL 1449

## Fyzický

Maximální výška	222.00 mm
Maximální šířka	483.00 mm
Maximální hloubka	451.00 mm
Výška stojanu	5U
Čistá hmotnost	52.27 KG
Hmotnost při dodání	60.91 KG
Výška při dodání	337.00 mm
Šířka při dodání	622.00 mm
Hloubka při dodání	610.00 mm
Barva	Běžová

## Okolní

Provozní prostředí	0 - 40 °C
--------------------	-----------

Provozní relativní vlhkost	0 - 95%
Provozní nadmořská výška	0-3000 metrů
Okolní teplota při uskladnění	-15 - 45 °C
Relativní vlhkost při uskladnění	0 - 95%
Nadmořská výška při uskladnění	0-15000 metrů
Slyšitelný hluk ve vzdálenosti 1 metru od povrchu jednotky	45 dBA
Odvod tepla	155 BTU/hr

## Vyhovuje normám

Schválení	Značka C,CE,EN 50091-1,EN 50091-2,GOST,VDE
Standardní záruka	2 roky na opravu nebo výměnu,lze přikoupit záruku na servisní služby přímo u zákazníka,lze přikoupit záruku na rozšířené servisní služby

Všechna práva vyhrazena. Všechny ochranné známky APC jsou vlastnictvím společnosti American Power Conversion. Ostatní ochranné známky jsou vlastnictvím příslušných vlastníků těchto známek. Technické údaje mohou být změněny bez předchozího upozornění.









- 17.2 Tieto Všeobecné podmienky, ako aj Cenník budú poskytnuté Účastníkovi pred uzatvorením Zmluvy.
- 17.3 Tieto Všeobecné podmienky nadobúdajú platnosť a účinnosť 01. februára 2006.