APX®1000 Universal Gateway

The APX ®1000 Universal Gateway is a flexible, efficient and extensible access platform that simplifies your delivery of high-demand IP services. A cost-effective compact switch supports services such as port wholesaling for dial-up IP with SS7-based Internet call diversion (ICD) and SDTN for financial transaction networks. Uniform capacity ensures consistent performance and density for all applications. And years of experience provide the stability networks demand.

Applications

Supports IP-based access services such as:

- Dial IP access services
- Wireline and wireless
- Port wholesaling

Features

- 10,800 DS0s per 7-foot rack

- Uniform capacity for consistent application performance and density, up to platform's maximum port capacity

- SS7-based ICD for dial-up IP port wholesaling

- Feature-rich True Access® Operating System (TAOS) — over 35 million ports installed Worldwide

- Multiple IP protocol support including IPDC, V.92 (with V.90), PIAFS (PHS), SDTN V.110, WORM ARQ

Benefits

- **Enhanced customer satisfaction** — maximize IP applications performance and capacity

- **Flexibility** — turn on revenue-generating IP services whenever and wherever you want them

- **Scalability** — deploy your choice of high-speed ingress and egress modules; implement access solutions with support for 96 to 720 DS0s per chassis.

- **Reduced operating and ownership costs** — universal port technology and high port density in a small footprint optimize CO space utilization

- **Carrier-class network reliability** — redundant components maximize uptime and serviceability; stable, carrier-proven TAOS helps sustain high availability

- **Easy to upgrade** — processing modules interchange among Universal Gateway platforms

- **Unmatched investment protection** — a wide range of IP protocols support emerging applications

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Software Technical Specifications

1. **Operating System**
   True Access®Operating System (TAOS) embedded software technology for edge access platforms including Lucent MAX TNT®and APX® family of Universal Gateway and combines multi-platform support with hardware-specific capabilities

2. **Protocol Support**
   WAN/LAN
   TCP/IP, UDP/IP, SCTP/IP, TCP Clear, PPP, Sync/Async-PPP, HDLC, GRE
   T1: PRI, RBS: Loop-Start, Wink-Start, R1, MF FG-D
   E1: PRI, E1 R2 MF (country-specific call progress tones)
   Routing
   RIP, RIP2, OSPF, BGP4, IGMP
   VPN/tunneling
   ATMP, L2TP, IP in IP, L2F, PPTP, Virtual Routers, VLAN tagging
   SS7 call control and signaling
   IPDC, E1/T1 tunneling using IPDC
   Fax-over-IP/modem-over-IP
   Group III Fax, T.38, Transparent Fax, Transparent Modem
   Modem termination/data transfer
   V.92: Modem on Hold, QuickConnect, PCM Up-stream
   V.90, K56Flex, V.34bis, V.34, V.32bis, V.32, V.21*
   V.22bis, V.22A/B, V.23*, V.44, V.42, V.42bis, V.110, V.120, (PHS) PIAFS, Bell 103*, Bell212A*
    * will not automode or dial-out

   Administrative
   FTP, TFTP, SNTP, DNS
   ATM
   UNI 3.1, PVC (CBR, VBR)
   ISDN
   AT&T, Northern Telecom, Q.931 GloBanD, Japan-PRI, VN3-PRI, OneTR6-PRI,   Net5-PRI, Danish-PRI, Australia-PRI, National ISDN 2, NFAS with D channel back-up Network and user-side ISDN

3. **Bandwidth Management and Data Compression**
   MLPPP, MP/MP+, MPPC, BACP, TCP header compression, ATM traffic shaping, STAC, MS-STAC, STAC-9

4. **QoS**
   RFC 2474 – Differentiated Services Code Point (DSCP) support
   RFC 791/1349 type of service (ToS) support

5. **Security and Authentication**
   RADIUS, TACACS/TACACS+, PAP, CHAP, MSCHAP v1+v2, DNIS, CLID, callback, token, local password, call-type pre-authentication

6. **Management**
   SNMPv2, NavisAccess™ System, SSHv1and SSHv2 (requires TAOS 14.0.x)   for Telnet, console, COT testing

Hardware Technical Specifications

7. **Physical Dimensions**
   14.8" (D) x 17.2" (W) x 5.20" (H) (3 rack units) 3RU
   Loaded system weight: 39 lbs. (approximate)

8. **Chassis Architecture**
   6 slots total
   1 dedicated slot for system controller module
   1 dedicated slot for channel ingress card
   4 general purpose slots for port processing, circuit and packet modules

9. **Port Density**
   576 data calls – via Channelized T1
   672 data calls – via Channelized T3
   720 data calls – via Channelized E1

10. **Serviceability/Redundancy**
    Packet, circuit and processing modules hot-swappable
    All modules and fan tray field-replaceable
    Three (3) independent cooling fans with system monitored fan-fail signals removable fan tray
    AC and DC power supply units
    - Hot-swappable, 1+1 redundant, load sharing, AC input and DC input power supplies
    - Mixed AC & DC supplies supported in the same Chassis

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11. **APX® 1000 Universal Gateway Module Options**
    WAN Access Modules
    Circuit switching (ingress)
    – 24-port Channelized T1/E1
    – 8-port Channelized E1
    – 8-port Channelized T1
    – 1-port Channelized T3
    Packet switching (egress)
    – 2 or 4-port 10/100 fast Ethernet
    Processor Modules
    288-port MultiDSP
    240-port MultiDSP
    96-port MultiDSP

12. **Power Requirements**
    Power budget AC
    Total typical values per fully loaded chassis:
    Input power per chassis: 200 W
    Heat dissipation: 683 BTU/h
    Current intake @ 100Vac input: 2.0 A**
    Current intake @ 115Vac input: 1.7 A**
    Current intake @ 230Vac input: 0.9 A**
    Recommended MAX:
    Input power per chassis: 381 W
    Heat dissipation: 1300 BTU/h
    Current intake @ 100Vac Input: 3.8 A**
    Current intake @ 115Vac Input: 3.3 A**
    Current intake @ 230Vac Input: 1.7 A**
    Power budget DC
    Total typical values per fully loaded chassis:
    Input power per chassis: 200 W
    Heat dissipation: 683 BTU/h
    Current intake @ -48Vdc input: 4.2 A**
    Current intake @ -40Vdc input: 5.0 A**
    Recommended MAX:
    Input power per chassis: 361 W
    Heat dissipation: 1233 BTU/h
    Current intake @ -48Vdc input: 7.5 A**
    Current intake @ -40Vdc input: 9.0 A**

    Configuration used for above:
    1 x controller module, 3 x 288-port MultiDSP modules,
    1 x 24-port T1 module,
    1 x 2-port Ethernet module, 1 fan tray

    ** Per power supply

13. **Operating Characteristics**
    Ambient operating temperature:
    -0 C to 40 C (-5c to +55c for short term per GR63-CORE)
    Ambient storage temperature:
    -40 C to +65 C
    Relative humidity:
    10% to 95% non-condensing
    Operating altitude:
    to 10,000 feet (3,050 M)

14. **Regulatory Compliance**
    NEBS: Level 3 compliant, GR-63-CORE, GR-1089-CORE, CLEI coded
    EMC/EMI: FCC 15 Class A, R&TTE Directive (EN 55022, EN 300 386), Class A, EN 61000-3-2, EN 61000-3-3, AS/NZS 3548, Class A, CISPR 22 Class A, VCCI Class A, CNS 13438 Class A
    Safety: CSA NRTL (UL 1950, Third Edition), CSA C22.2, No. 950, Third Edition, R&TTE Directive EN 60950 Including Amendments 1, 2, 3, 4, 11, IEC 60950 including Amendments 1, 2, 3, 4
    Telecom: FCC Part 68, IC CS 03, JATE

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