The Cisco 7400 Series Internet Router is one of the industry’s leading Internet routers available in a compact form factor—one rack unit (RU). The high performance, exceptional flexibility, and versatility found in the Cisco 7400 ideally positions this router for applications such as broadband subscriber aggregation, managed services customer premises equipment (CPE), and network services gateway.

**Key Benefits**
- “Pay-as-you-grow” granularity with small, stackable form factor
- Highest service density and performance per 1RU in the industry
- High level of flexibility and versatility with support for over 40 modular interfaces, including serial, Channelized, ISDN, Frame Relay, ATM, IP, and 64K to OC-3
- Support up to 320,000 subscribers per 7-foot rack

### Cisco 7401 Chassis

![Cisco 7401 Chassis Diagram]
# Features and Benefits

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-RU Form Factor with Front-to-Back Airflow and Single Port Adapter Slot</td>
<td>Built for stackability with space efficiency and maximum performance density</td>
</tr>
<tr>
<td>Two Fixed 10/100/1000-Mbps Ports (RJ-45 for Fast Ethernet and Ethernet, and Gigabit Interface Converter [GBIC] for Gigabit Ethernet)</td>
<td>Maximizes LAN connectivity without extra rack space</td>
</tr>
<tr>
<td>AC, DC 48V, DC 24V, or Dual DC 48V with 50W Power Consumption</td>
<td>Flexibility and high availability with one-third of traditional power consumption</td>
</tr>
<tr>
<td>Up to 300-kpps Processing Capability</td>
<td>Provides high-performance routing and processing performance, OC-3 wire rate</td>
</tr>
<tr>
<td>Processor with Parallel Express Forwarding Technology</td>
<td>Delivers high-performance, hardware-accelerated, high-touch IP services</td>
</tr>
<tr>
<td>Cisco IOS® Software</td>
<td>Supports IP network services, including quality of service (QoS), security, compression, and IP Security Triple Digital Encryption Standard (IPSec 3DES) encryption at high speed</td>
</tr>
<tr>
<td>Broad Range of WAN Media Interfaces from DS0 to OC-3 (40+ port adapters)</td>
<td>Provides a flexible and redeployable solution for traffic aggregation</td>
</tr>
<tr>
<td>Service Selection Gateway (SSG)</td>
<td>Creates value-added revenue by providing Web-based self-provisioning services</td>
</tr>
<tr>
<td>Common Port Adapters with Cisco 7500 and Cisco 7200 Routers</td>
<td>Stocking spares simplification and investment protection in interfaces</td>
</tr>
<tr>
<td>Cisco Element Manager Framework (CEMF)</td>
<td>Simplifies and accelerates the deployment and management of new services and elements across the network</td>
</tr>
<tr>
<td>Cluster Management</td>
<td>Manages stack as a cluster from a single interface</td>
</tr>
<tr>
<td>Stackability</td>
<td>“Pay as you grow;” provides an opportunity to build and redeploy the stack to other parts of the network as demand changes</td>
</tr>
<tr>
<td>Managed Service CPE</td>
<td>Ideal New World CPE with full Multiprotocol Label Switching (MPLS) and MPLS virtual private network (VPN) support</td>
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</tbody>
</table>
Applications

The Cisco 7400 targets specific market segments with two product bundles:

- **Cisco 7401 ASR-BB** — Broadband subscriber aggregation including digital subscriber line (xDSL), ISDN, fiber-to-the-curb (FTTC), and wireless
- **Cisco 7401 ASR-CP** — Managed service (CPE and customer-leased equipment) and full MPLS provider edge (PE) and MPLS VPN services
- **Cisco 7401 ASR-CP** — Network service gateway for QoS enforcement or hardware-accelerated service (PXF)

<table>
<thead>
<tr>
<th>Broadband Aggregation</th>
<th>Managed Services CPE</th>
<th>Network Services Gateway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich Multicast Features</td>
<td>MPLS</td>
<td>Network Address Translation (NAT)</td>
</tr>
<tr>
<td>Point-to-Point Protocol (PPPoX)</td>
<td>MPLS VPN</td>
<td>Access control list (ACL)</td>
</tr>
<tr>
<td>Intelligent Layer 2 Tunneling Protocol (L2TP) Services</td>
<td>MPLS traffic engineering (TE)</td>
<td>Committed access rate (CAR)</td>
</tr>
<tr>
<td>Routed Bridge Encapsulation (RBE)</td>
<td>MPLS QoS</td>
<td>QoS enforcement (low-latency queuing [LLQ], Class-Based Weighted Fair Queuing [CBWFQ], Class-Based Weighted Random Early Detection [CBWRED])</td>
</tr>
<tr>
<td>Authentication, Authorization, and Accounting (AAA)</td>
<td>Multiple virtual routing and forwarding (MVRF)</td>
<td>NetFlow accounting</td>
</tr>
<tr>
<td>SSG</td>
<td>Service-level agreement (SLA) management</td>
<td>Router reflector</td>
</tr>
<tr>
<td>Self-Provisioning of ATM Virtual Circuit (VC)</td>
<td>Provisioning/accounting</td>
<td>Virtual LAN (VLAN)</td>
</tr>
</tbody>
</table>

**Broadband Subscriber Aggregation (Cisco 7401 ASR-BB)**

The Cisco 7400 can aggregate thousands of broadband subscribers to enable value-added IP services. In service-provider networks, it can accept a large concentration of broadband subscriber traffic from a variety of devices such as DSL access multiplexers (DSLAMs), cable modem termination systems (CMTSs), and wireless concentrators. The Cisco 7400 can also efficiently terminate ISDN Primary Rate Interface (PRI) and BRI traffic, making it an ideal modular approach to building an ISDN DSL (IDSL) or ISDN infrastructure. When deployed by carriers and cable operators in regional data networks, the Cisco 7400 enables cost-effective, highly scalable, secure wholesale access for creating and deploying value-added IP services.

Software features for Cisco 7400 broadband aggregation include:

- PPP over ATM, PPP over Ethernet, and PPP over VLAN
- RBE for RFC 1483 or RFC 1490-based permanent-virtual-circuit (PVC) terminations
- Virtual routing for high-density circuit termination with increased security, flexibility, and scalability
- Password Authentication Protocol/Challenge Handshake Authentication Protocol (PAP/CHAP) and Remote Access Dial-In User Service (RADIUS) authentication
- Intelligent L2TP tunneling support
- Differentiated, value-added services with hardware-accelerated PXF services along with flexible modular interfaces for traffic aggregation, including OC-3, DS3, Fast Ethernet and Gigabit Ethernet, POS, and more
- Ideal for small- and medium-density aggregation for network operators, competitive local exchange carriers (CLECs), and Internet service providers (ISPs)
- MPLS VPN and full L2TP-to-MPLS support
**Managed Services CPE (Cisco 7401 ASR-CP)**

The Cisco 7400 is an ideal platform for managed services where end customers are given their own router, and the service provider manages it for them. In many cases, stacks of routers are needed. In such environments, space, airflow, and heat/power dissipation are issues. The Cisco 7400 delivers the performance of the Cisco 7200 in one-third the space, with one-fifth the power and with front-to-back airflow.

Following is the list of PXF-accelerated managed services CPE features for the Cisco 7400:

- ATM, Frame Relay, Dynamic Packet Transport (DPT), POS, Channelized, and serial interfaces from 64K to OC-12
- Full range of traditional Cisco routing protocols, including Routing Information Protocol (RIP), Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), and MPLS
- Virtual routing for high-density circuit termination with increased security, flexibility, and scalability
- Ideal for small and medium-density aggregation for network operators, CLECs, and ISPs
- MPLS VPN and full L2TP-to-MPLS support
- Stackability (50 watts, front-to-back airflow)
- Differentiated, value-added services with hardware-accelerated PXF services along with flexible modular interfaces for traffic aggregation, including OC-3, DS3, Fast Ethernet and Gigabit Ethernet, POS, and more

**Network Services Gateway (Cisco 7401 ASR-CP)**

Cisco IOS VPN services (including tunneling features Layer 2 Forwarding [L2F], L2TP, and generic routing encapsulation [GRE] tunneling) combined with security features, high-speed processing power, and unparalleled connectivity options make the Cisco 7400 an ideal choice for services gateway applications. Enterprises and ISPs use the Cisco 7400 as the preferred gateway for a wide variety of applications.

The following is a list of PXF-accelerated services supported for the network services gateway on the Cisco 7400:

- Network Address Translation (NAT)
- Access control list (ACL)
- NetFlow accounting and export
- Low-latency queuing (LLQ)
- Class-Based Weighted Fair Queuing (CBWFQ)
- Class-Based Weighted RED (CBWRED)
- Committed access rate (CAR)
### Port and Service Adapters

#### LAN Port Adapters
- Four-port Ethernet 10BaseT
- Eight-port Ethernet 10BaseT
- One- or two-port 100BaseFX
- 100BaseTX
- Five-port Ethernet 10BaseFL

#### Serial Port Adapters
- Serial, enhanced
- Serial, V.35, 232, X.21
- E1 G.703 serial (75 ohm/unbalanced)
- E1 G.703 serial (120 ohm/balanced)

#### HSSI Port Adapters
- One- or two-port T3 serial with data service unit (DSU)
- One- or two-port E3 serial with DSU

#### Multichannel Port Adapters
- Eight-port Basic Rate Interface (BRI), S/T interface
- Eight-port BRI, U interface
- Two-port multichannel T1 with channel service units/DSUs (CSUs/DSUs)
- Four-port multichannel T1 with CSUs/DSUs

#### POS Port Adapters
- One-port Packet over SONET (POS) OC-3c/STM-1, MM

#### ATM Port Adapters
- ATM inverse multiplexer E1 (120 ohm)
- ATM enhanced E3
- ATM enhanced DS3
- ATM enhanced OC3c/STM1, MM

#### HSSI Port Adapters
- ATM enhanced OC3c/STM1, SMI
- ATM enhanced OC3c/STM1, SML

#### Encryption/Compression
- Eight-port multichannel T1 with CSUs/DSUs

### For more information on the Cisco 7400, visit //www.cisco.com/go/7400.