15ME

AS/400e

AS/400 TCP/IP Technical Directions

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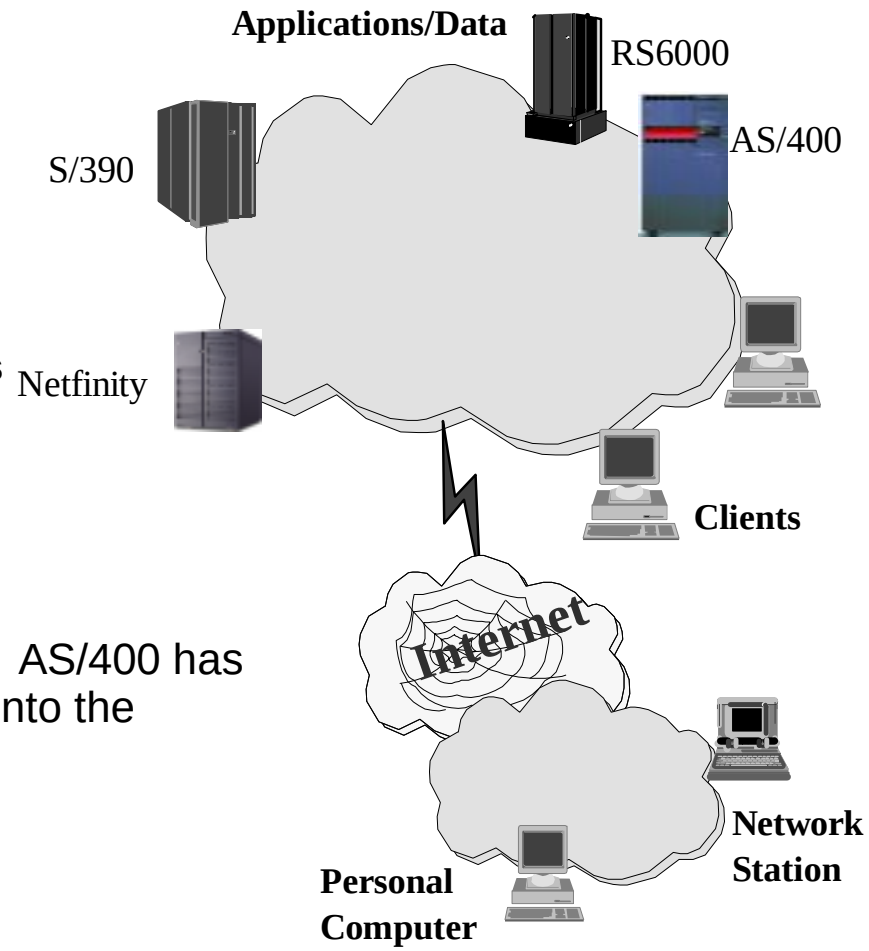
Disclaimer

- The following presentation contains IBM plans and directions and is subject to change without notice.

Why TCP/IP?

You probably have one or more of these requirements now or in your future:

- **Internet**
- **intranet**
- **Web Applications**
- **Lotus Domino**
- **Heterogeneous Computing**
- **IBM Network Stations**
- **Universal Access**
- **Network Cost Management**
- **New Distributed Applications**
- **Secure Access**



Many require TCP/IP in some form. AS/400 has excellent TCP/IP support built right into the operating system.

Isn't the AS/400 an SNA Machine?

Isn't SNA built into the lowest levels of the operating system?

- Yes, and TCP/IP is too!

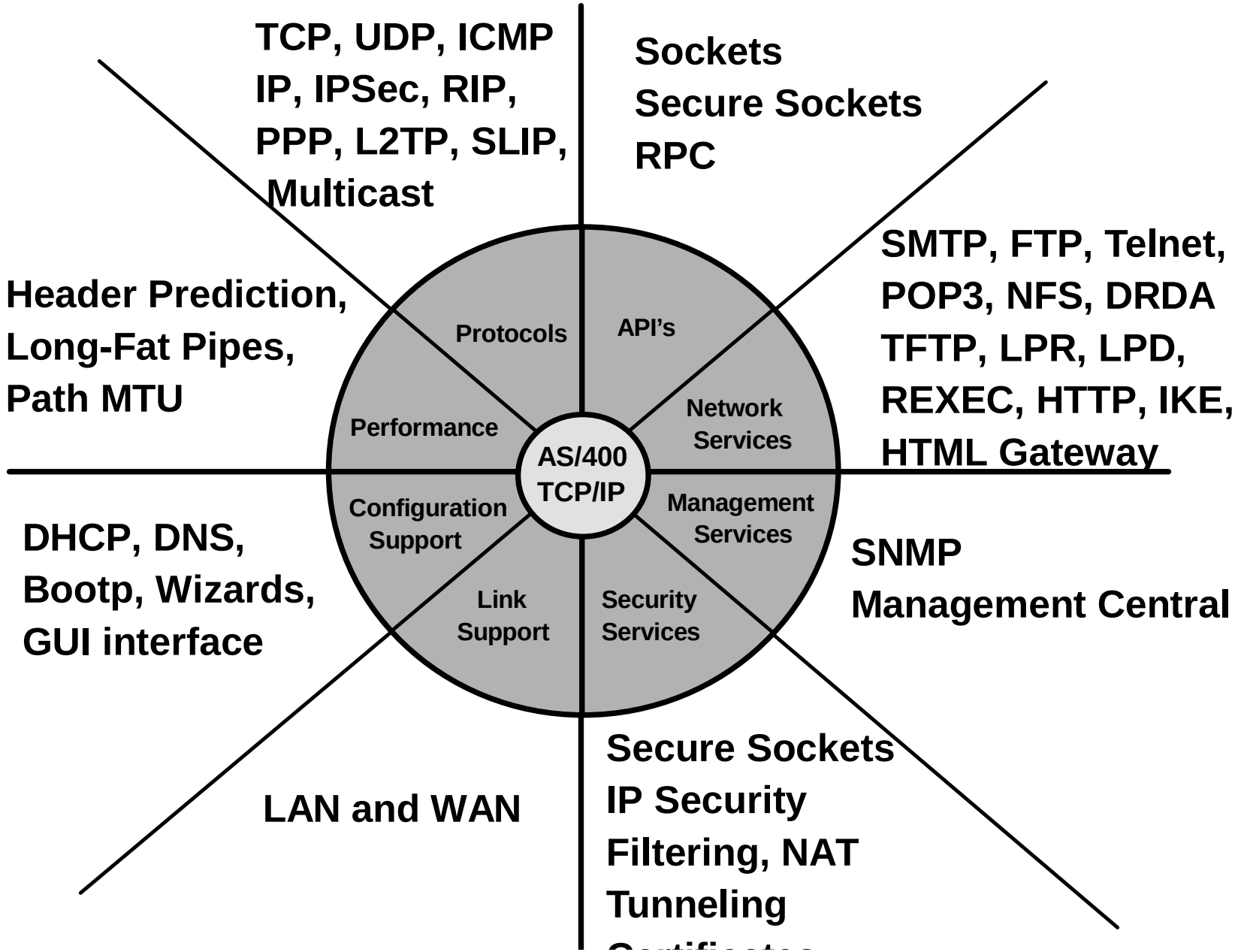
Isn't SNA performance better than TCP/IP?

- No, in most cases TCP/IP performs equal to or better than SNA

Will adding TCP/IP disrupt my SNA applications?

- Not likely. TCP/IP and SNA co-exist happily on AS/400. In most cases they can even share the same I/O adapters.

AS/400 TCP/IP support (standards-based)

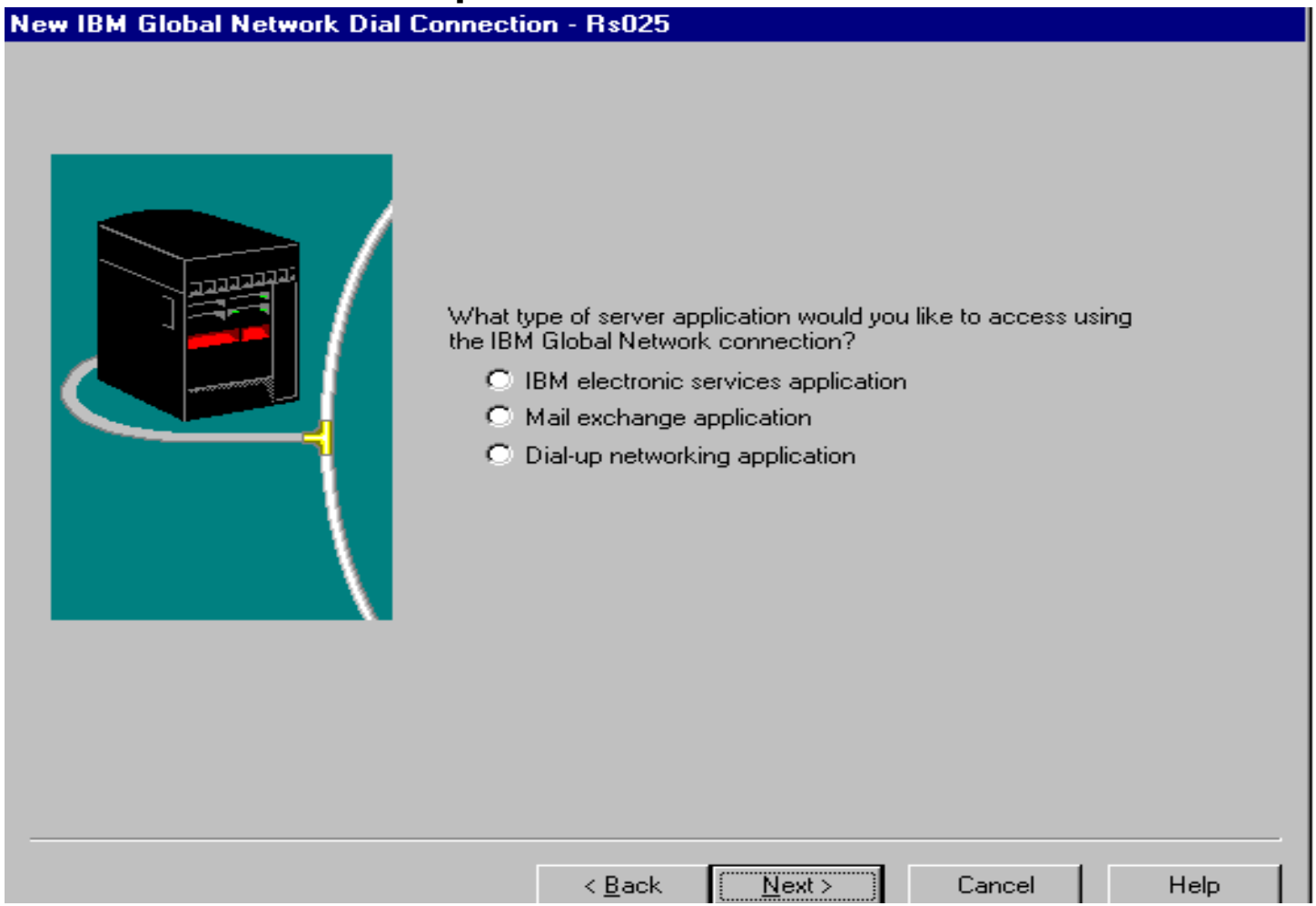


AS/400 TCP/IP technical directions

- Internet services support
- TCP/IP security enhancements (SSL and VPN)
- Quality of Service (QoS) support
- Dynamic DNS (DDNS) BIND and DHCP enhancements to update DNS during IP address assignment
- TCP/IP performance improvements
- TCP/IP application enhancements
- System wizards for setting up Internet connectivity and Web Server
- Large scale deployment enhancements and Policy based networking
- Additional manageability and serviceability work

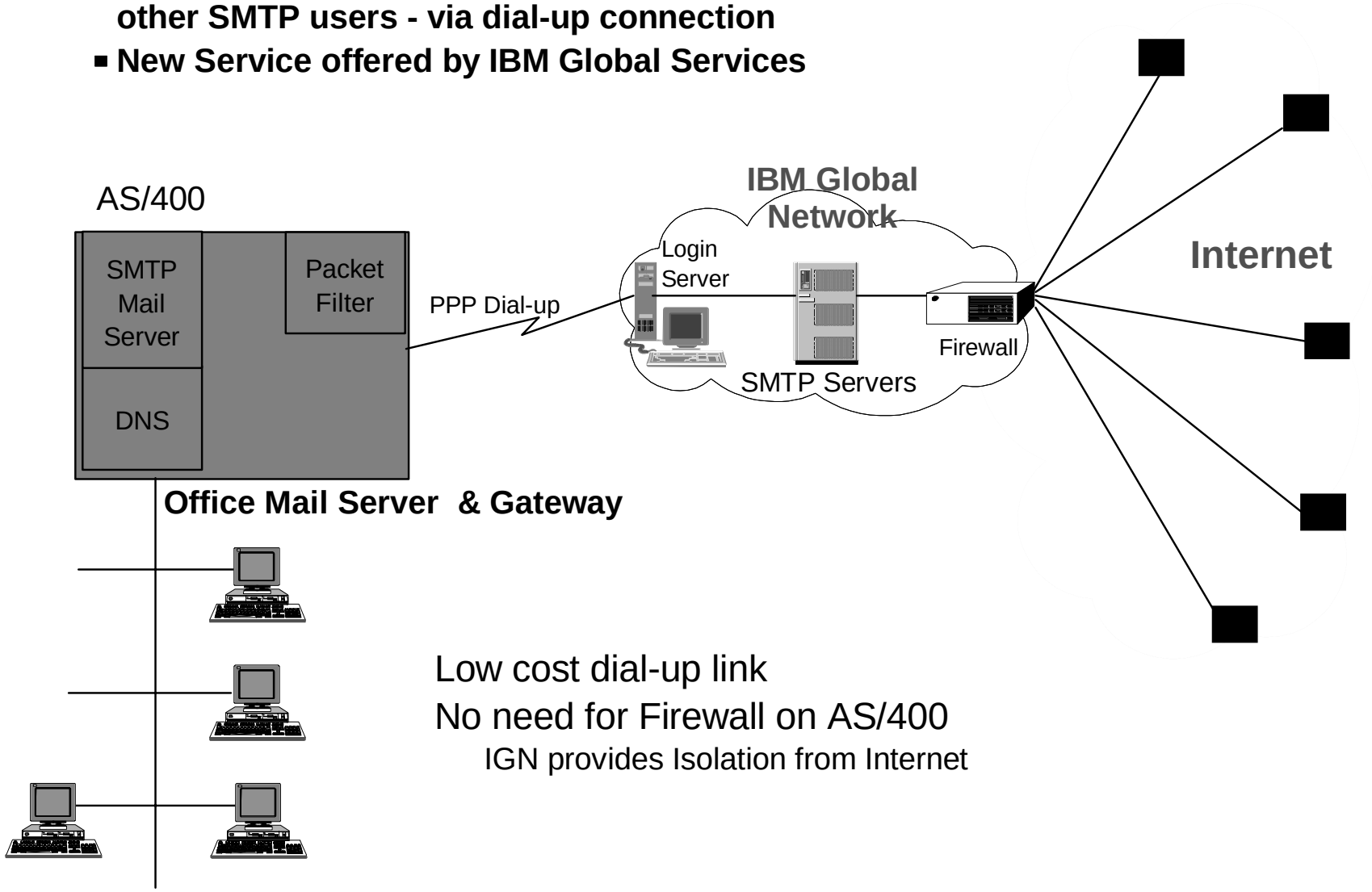
Internet Services

- IBM Global Services support for the following:
  - Wizard for setting up electronic service support
  - Wizard for setting up Mail Exchange via SMTP (scheduled)
  - Wizard for setting up Internet connection using IBM Global Services as the ISP provider



Internet Mail Services

- **Allows customers to exchange mail between their SMTP Mail Server and other SMTP users - via dial-up connection**
- **New Service offered by IBM Global Services**

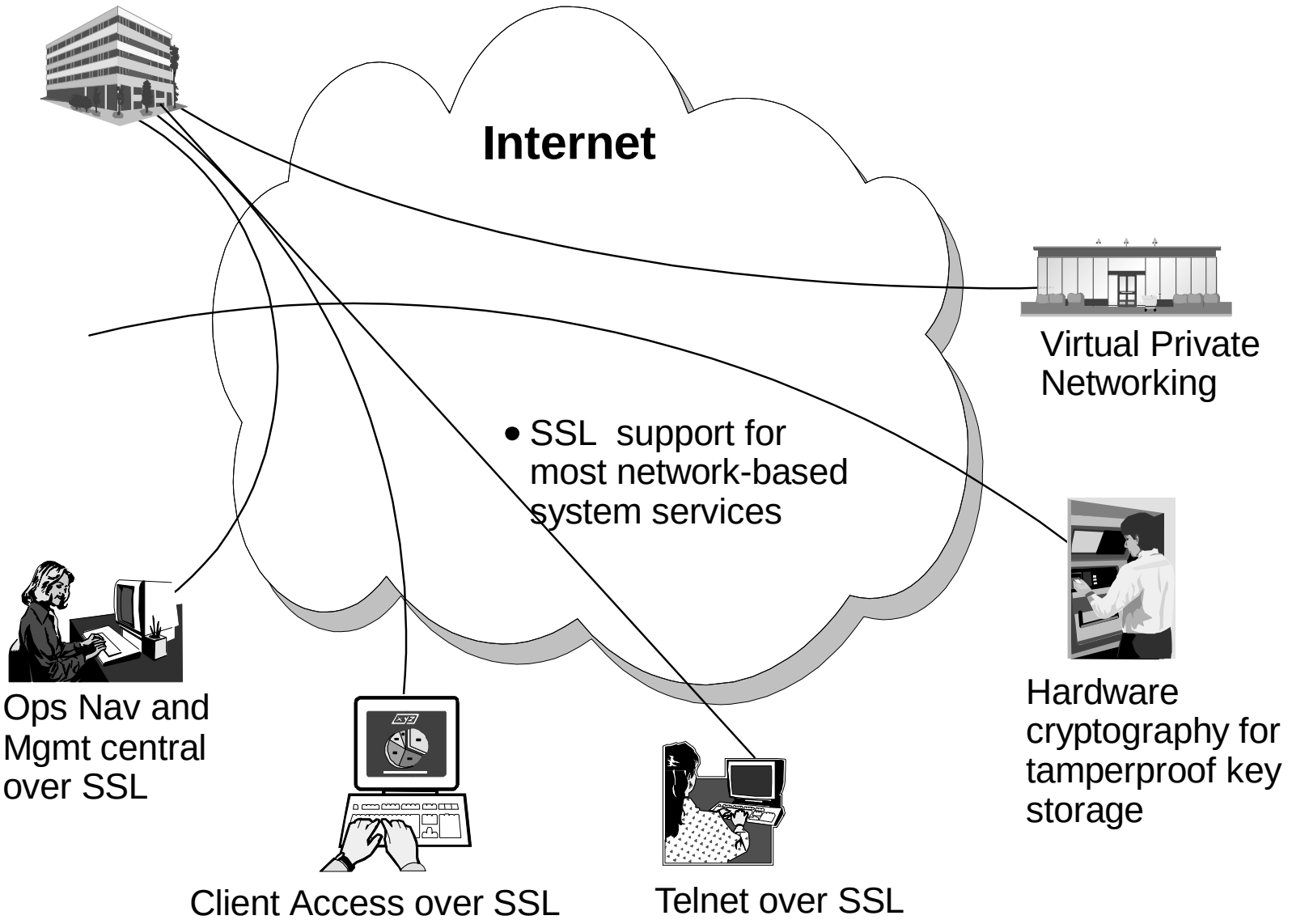


Low cost dial-up link

No need for Firewall on AS/400

IGN provides Isolation from Internet

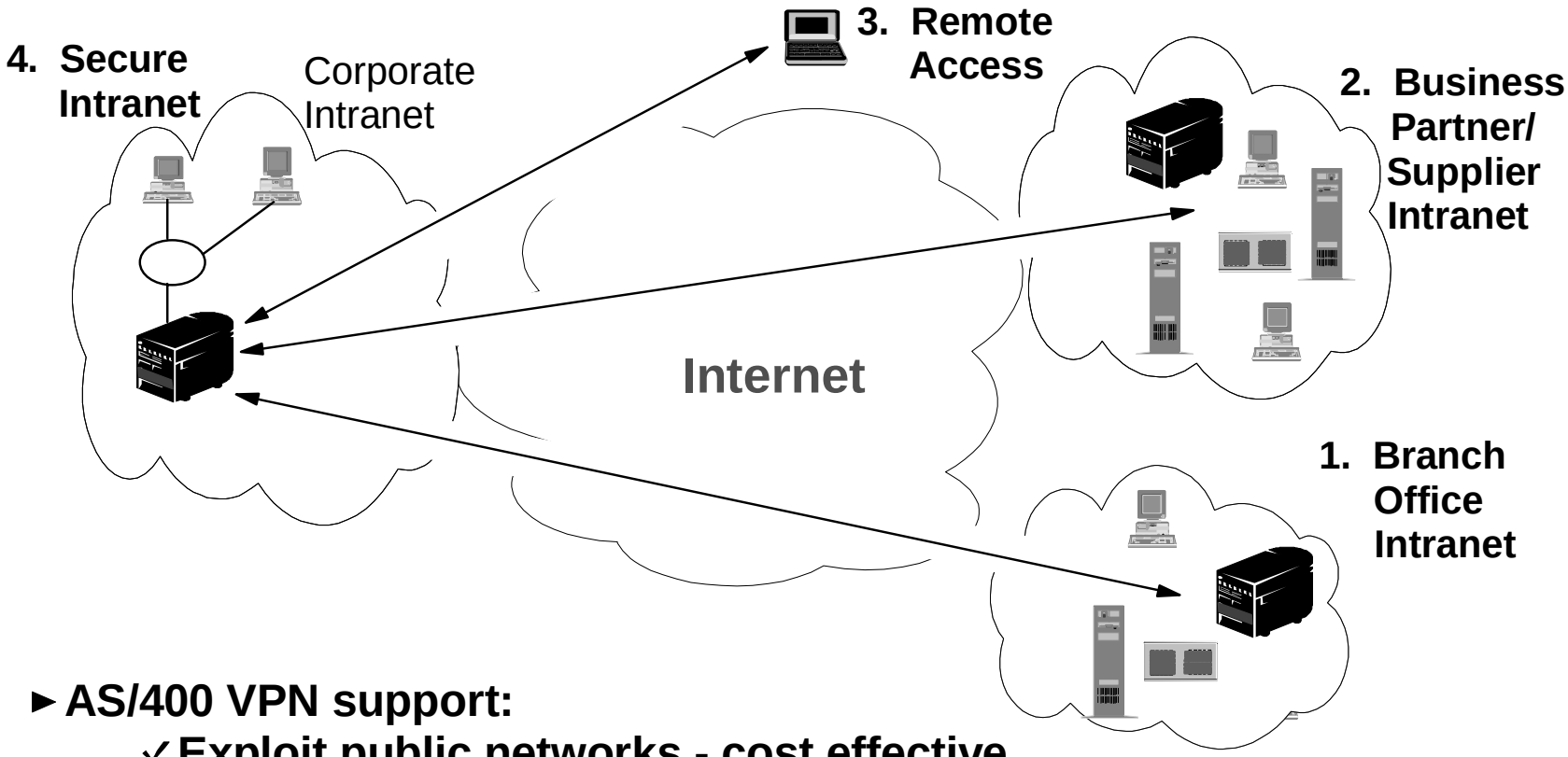
TCP/IP security support - SSL (application enablement)



TCP/IP Sockets directions

- SSL directions
  - Performance improvements
  - Additional applications
  - Transport Layer Support (TLS) 3.0
  - Additional API support

Virtual Private Networking - IP layer security

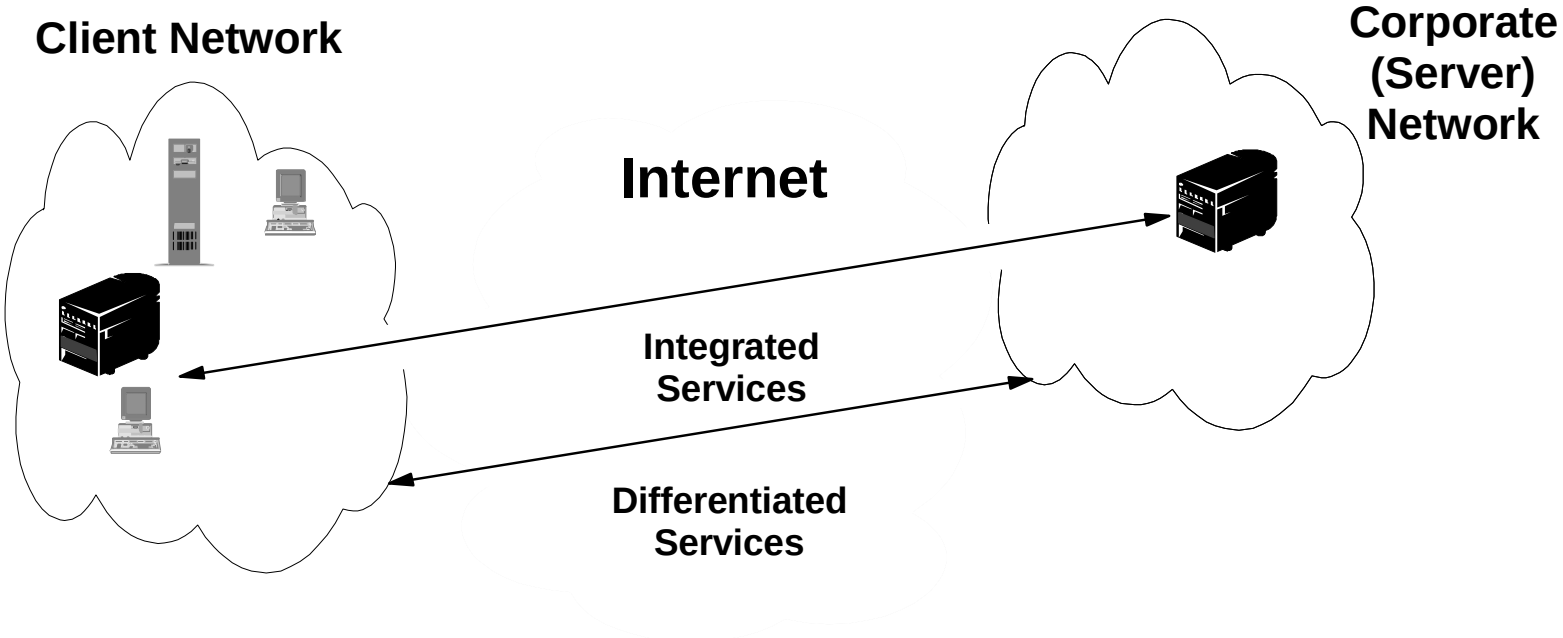


- **AS/400 VPN support:**
  - ✓ **Exploit public networks - cost effective**
  - ✓ **Secure**
  - ✓ **Easy to setup and deploy**
  - ✓ **Standards-based and interoperable**

Virtual Private Network directions

- On-demand secure connections based on arrival of IP traffic
- IP compression support and performance improvements
- Radius client for the AS/400
- IKE certificate support (RSA signature for authentication)
- Replication of VPN policy and generation of responder side from an inititator definition

Quality of Service (QoS) scenarios



- AS/400 QoS support:
  - ✓ Establish class of service required instead of best effort
    - Application requests amount of bandwidth (end-to-end)
    - Based on type of traffic priority given (differentiated services)
  - ✓ Can be secured using integrated VPN
  - ✓ Easy to setup and deploy
  - ✓ Standards-based and interoperable

Quality of Service (QoS) technical direction

End-to-End

- Resource ReSerVation Protocol (RSVP) and X/Open RSVP API
  - Application requests amount of bandwidth necessary (via RSVP API)
  - Negotiated end-to-end and dedicated for duration request
  - Can be dynamically changed
  - Based on IETF standard
- Good for applications requiring dedicated quality of service
  - Multimedia (streaming audio and video)
  - ERP or business applications requiring a better class of service for certain time periods

Differentiated Services (Classes of Service)

- Differentiated Best Effort
  - Traffic is classified and each class can be given different treatment at router
  - Each class remains best effort
  - Based on IETF DiffServ proposed standard
- Good for giving certain types of traffic priority
  - More Scalable than end-to-end QoS
  - Transparent to Applications
- Policy defining Quality of Service

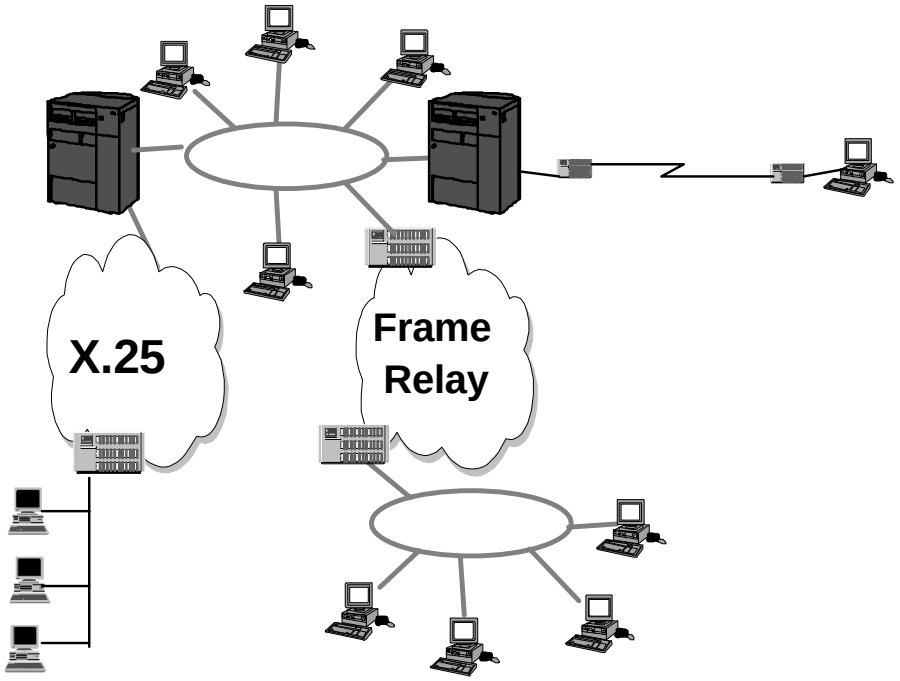
Dynamic IP directions

- Dynamic DNS and DHCP updates
  - Provide upgraded DNS BIND based on the Internet Software Consortium's (ISC)
  - Automatic DNS updates via DHCP
    - DHCP will update DDNS with host and domain name information while IP address is being handed out to client
  - Existing BIND version 4.9.3 DNS files will be automatically converted to new BIND version format
  - Java GUI being supplied for DDNS configuration along with several wizards
- DHCP client for automatic IP information assignment
- PPP over Ethernet (PPPoE)

TCP/IP Performance Improvements directions

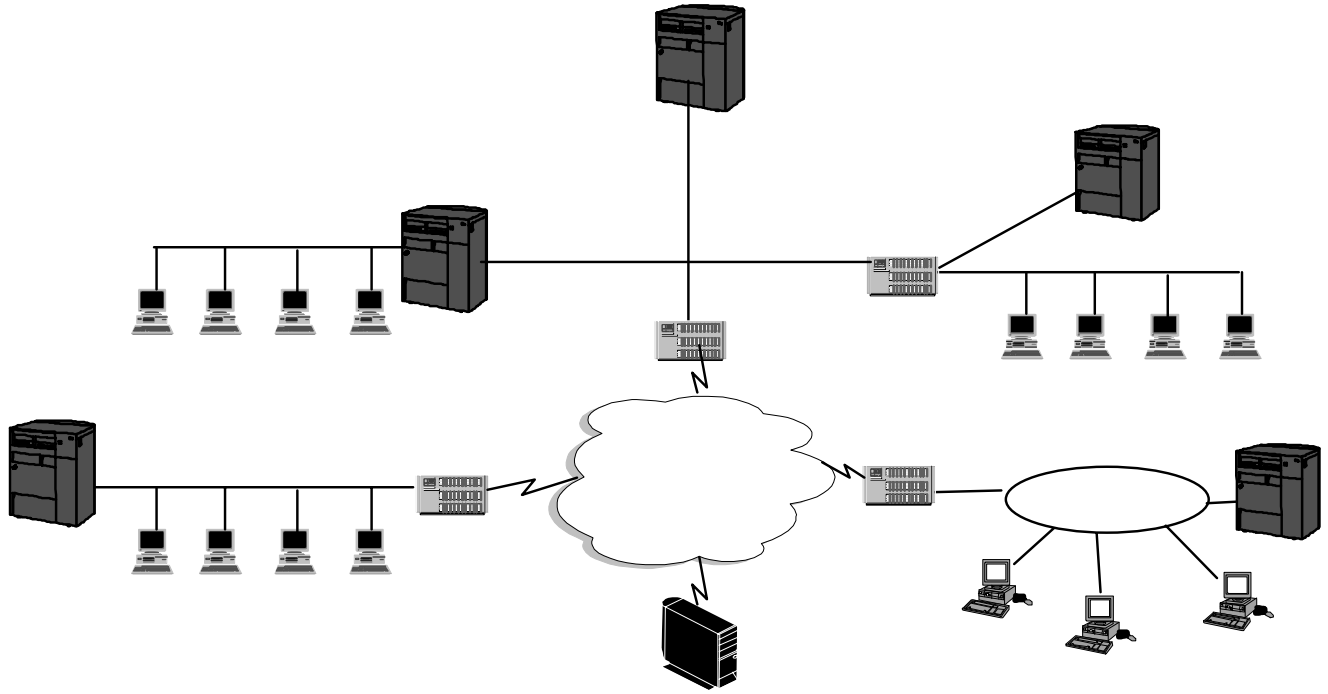
- Increase scalability by reducing connect/request/response time
- Continue to reduce pathlength resulting in overall TCP/IP improvement
- Additional performance related RFCs supported

Link types (Wide Area Networks)



Physical	Data Rates	Transport Protocols Supported
V.24 / EIA 232	64 Kbps 115.2 Kbps	Synchronous PPP, Bisync, SDLC, X.25 Asynchronous, including Async PPP
ITU V.35 or EIA-449/ITU V.36	2.048 Mbps 640 Kbps 64 Kbps	Synchronous PPP, Frame Relay, SDLC X.25 Bisync
ITU X.21	2.048 Mbps 640 Kbps	Synchronous PPP, Frame Relay, SDLC X.25
ISDN Basic	2-64 Kbps	IDLC, X.25, TCP/IP
ISDN Primary	1.544 - 2.04 Mpbs	IDLC, X.25, TCP/IP

Link types (Local Area Networks)

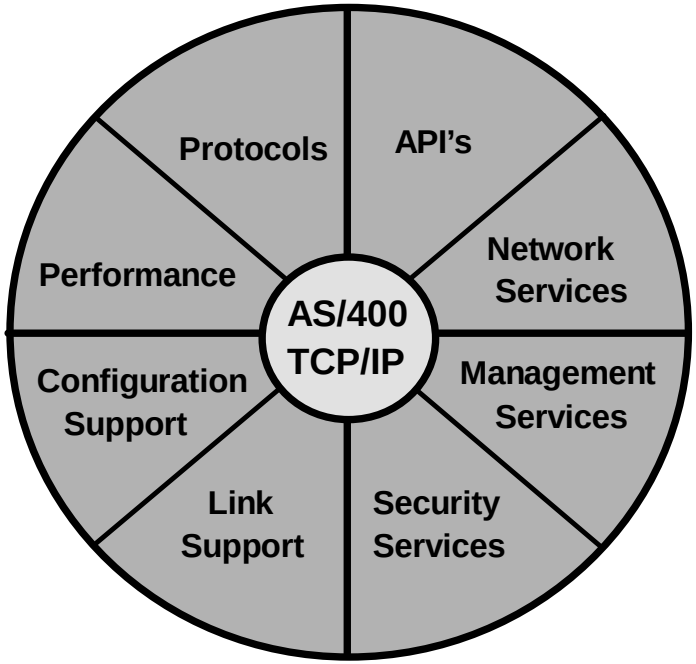


Physical	Data Rates	Transport Protocols Supported
Token Ring	4, 16, 100 Mbps	TCP/IP, IPX, APPC / APPN / HPR
Ethernet	10, 100 Mbps, 1Gbps	TCP/IP, IPX, APPC / APPN / HPR
FDDI / SDDI	100 Mbps	TCP/IP, IPX, APPC / APPN / HPR
ATM	25, 34, 155 Mbps	LAN Emulation : Ethernet Token Ring
Wireless	2 Mbps	TCP/IP, IPX, APPC / APPN / HPR
Twinax	1 , 2 Mbps	TCP/IP

TCP/IP applications directions

- FTP
  - SSL support
  - Performance improvements
  - Selectable subsystem for jobs
  - Internationalization enhancements
- SMTP
  - Multiple domain support
  - Enhanced anti-spam support (blacklists)
  - Selectable subsystem for jobs
- Telnet
  - SSL Client authentication support in server
  - Telnet client restructuring
    - Device name support
- Simple Network Time Protocol (SNTP) client and server support

Summary



AS/400 TCP/IP support - Leading-edge and standards-based

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