

Advanced Internet Solutions

Peter Brockmann

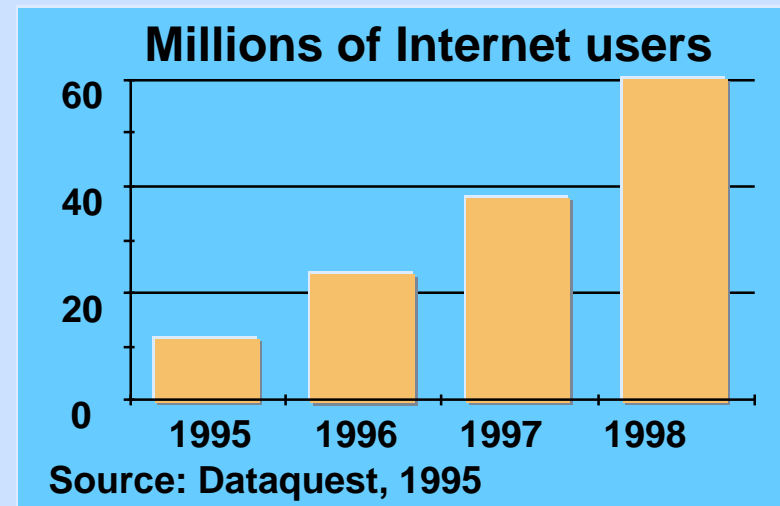
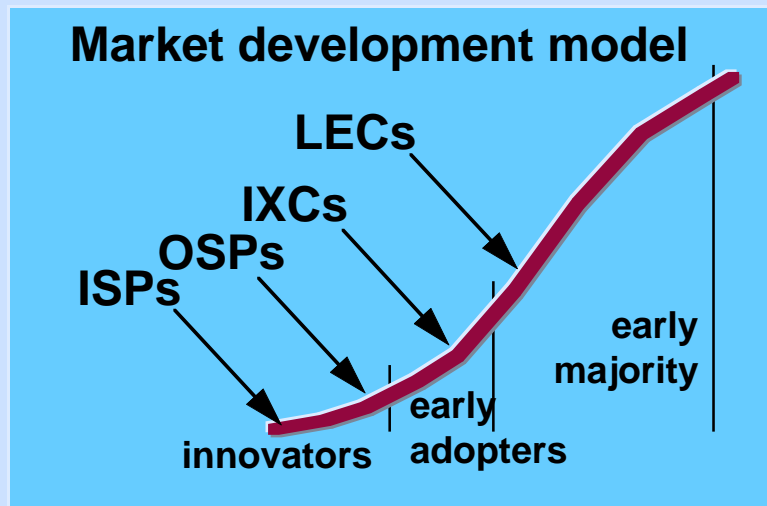
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Agenda

- **Market trends**
- New product category
- Nortel Internet solutions portfolio
- Backup charts
 - business case dynamics
 - detailed product category comparison

Internet Market Status



- **Low barriers to entry**
lots of competition
 - Internet service providers growing
 - on-line service providers reinvent
 - the IXCs are coming...
 - the LECs are coming...

**Community of interest
is the critical element**

Multiple markets

Consumer:

- Internet dialup service
- High performance communications
- Peripheral sales and rentals

Enterprise:

- Enterprise remote access service
- Telecommuting
- High performance communications
- Desktop support services

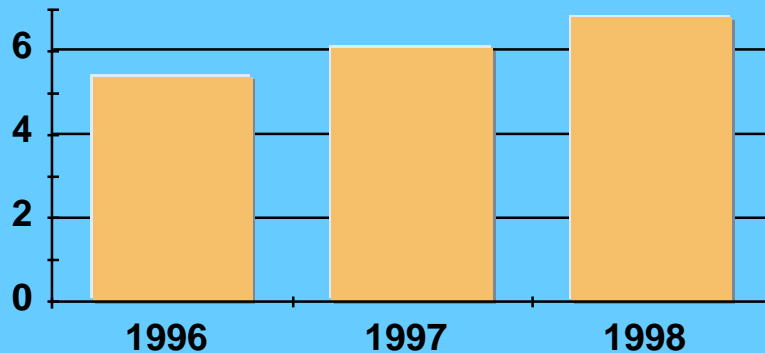
Nortel and the Internet

- **Competencies in internetworking:**
 - class A address (47)
 - operating one of the largest global enterprise internetworks growing since 1988
 - presence on the Internet since 1986
 - a board member of ANS, 1993-1995
 - contributed to several Internet Engineering Task Force standards
 - wholesaler of Internet services to independent operating companies
 - www.nortel.com is consistently rated as a top site
 - interactive age
 - disclosure magazine
- **Portfolio of Internet solutions: Rapport**

Enterprise Remote Access

Our Differentiating Market

Millions of laptop PCs shipped



Source: Computer Retail Week, Nov 1994

**Corporate MIS objective:
Same performance in
hotel as in office**

- **Carriers must resolve MIS' security concerns**
 - IP address assignment
 - user authentication
 - encryption
- **Carriers can consult on user set-ups**
 - modems supported
 - ISDN configurations
 - client software
- **Carriers can offer help desk services**
 - troubleshoot protocol conflicts
 - fix dialing errors
 - resolve modem incompatibilities

Although ripe for carrier entrée, this market has a higher technical benchmark

Agenda

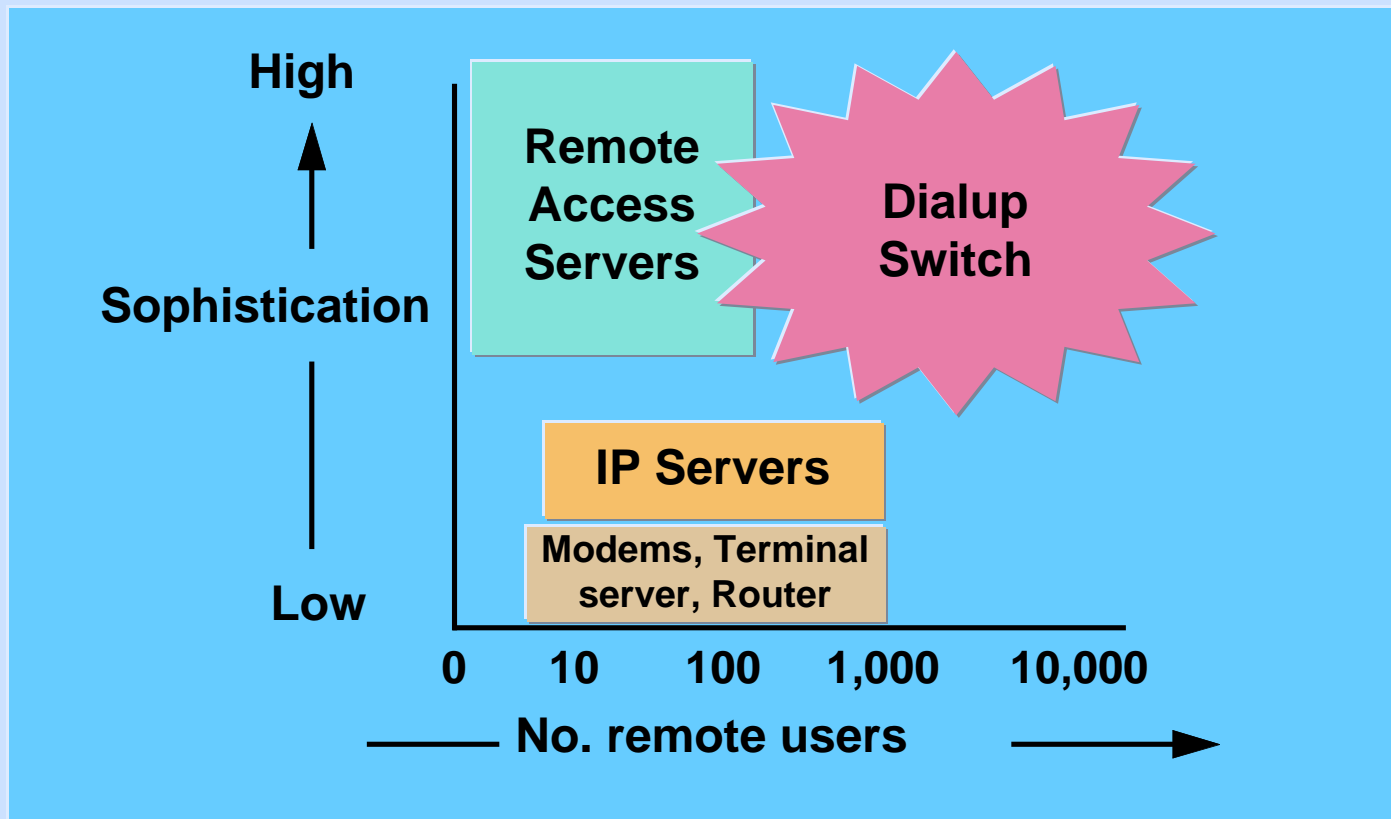
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When Worlds Collide...

Attribute	PSTN	Internet or Corporate Internetwork
Objective	• Connect people	• Share computer resources
Technology	• Connection-oriented	• Connection-less
Design intent	• 1-to-1	• 1-to-1, 1-to-many, many-to-many
Delay tolerance	• Expect consistent	• No sensitivity
Max delay	• Max. 250 ms	• No sensitivity
Stress response	• Contention, blocking	• Delays introduced
Address space	• $<2/\text{km}^2$ of earth	• IPv6: $666 \times 10^{27}/\text{km}^2$ of earth
Bandwidth	• Narrowband	• Wideband +
Peak periods	• Mother's day	• Special events - Levy-Shoemaker 9
Players	• Oligopoly/monopoly	• Cast of thousands
Pricing	• Time and distance	– no distance sensitivity
Security	• Physical security	• Logical security

Unique networking paradigms collide to create new product categories

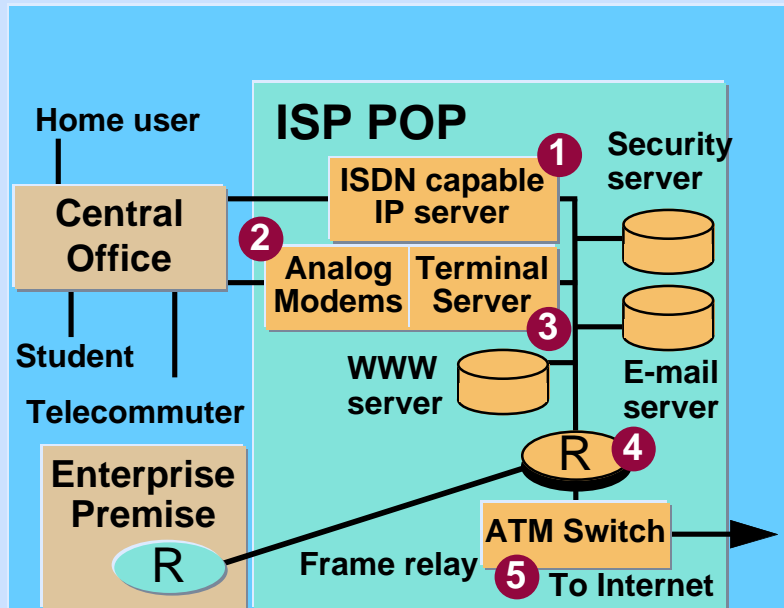
The Dialup Switch Category



... a new category of product

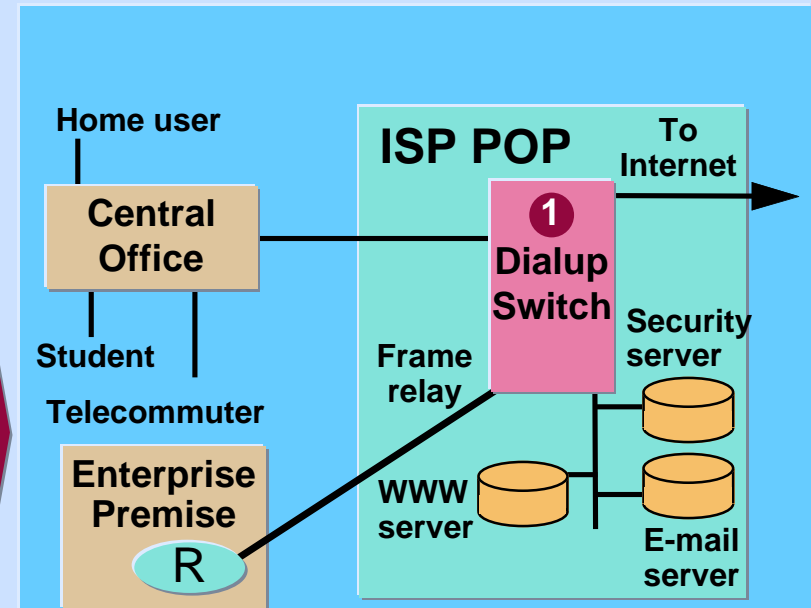
Our Solution: 'POP in a Box'

Before



- ISP management and support:
- 5 management systems
 - 5 vendors for support

After



- ISP management and support:
- 1 management system
 - 1 vendor for support

**Consolidated functions, lower operating costs,
advanced service provider features**

Addressable Service Markets

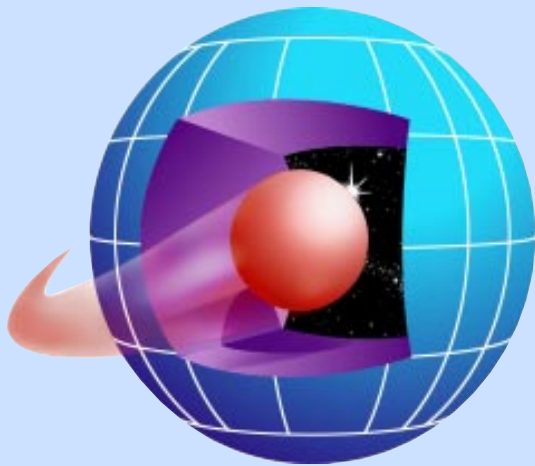
	Dialup switch	Remote Access	IP Server Server	Modems, T/Servers and Routers
Enterprise remote access <ul style="list-style-type: none"> • Outsourcing - wholesaling • Outsourcing - direct • Bundling 	✓ ✓ ✓	✓ ✓	✓	
Internet access <ul style="list-style-type: none"> • Wholesaling • Direct 	✓ ✓		✓	✓

Dialup Switch addresses multiple service markets

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Rapport is...



...a portfolio of hardware, software, and services products that open up the public and enterprise Internet to our customers and their customers, making it easier, more secure and more reliable to use and own.

This innovative solution set defines a new standard in ease of ownership

Rapport Dialup Switch Portfolio

Rapport Remote



Rapport Manager

Windows applications
for Models 8E, 8T

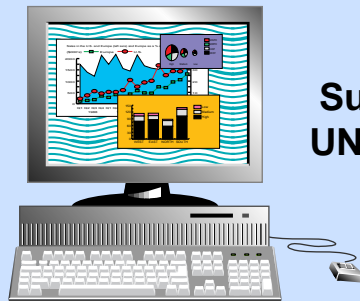
Model 8E, 8T



- 8 user ports
- V.34 or ISDN BRI
- Ethernet, token ring

Rapport Director

HP OpenView applications
for Models 112, 670

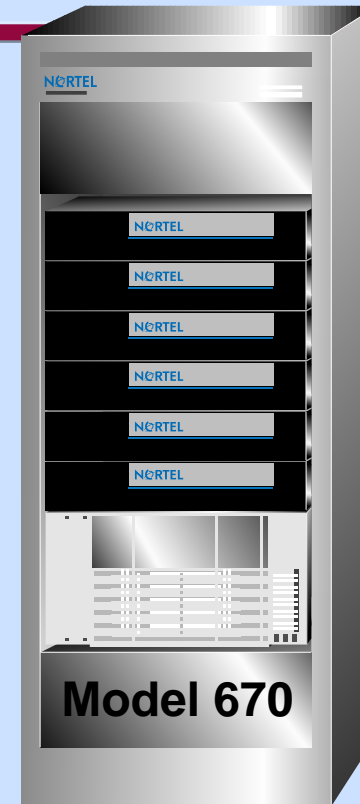


Sun
UNIX

Model 112



- 112 user ports
- 5 T1/E1 or ISDN PRI
- Ethernet, frame relay



Model 670

- 672 user ports
- 30 T1/E1 or PRI
- Wide area module
 - 6 port Ethernet router
 - FDDI
 - T3/E3 (FR)
 - T3/E3, OC-3 (ATM)

Model 112 Architecture

Hardware

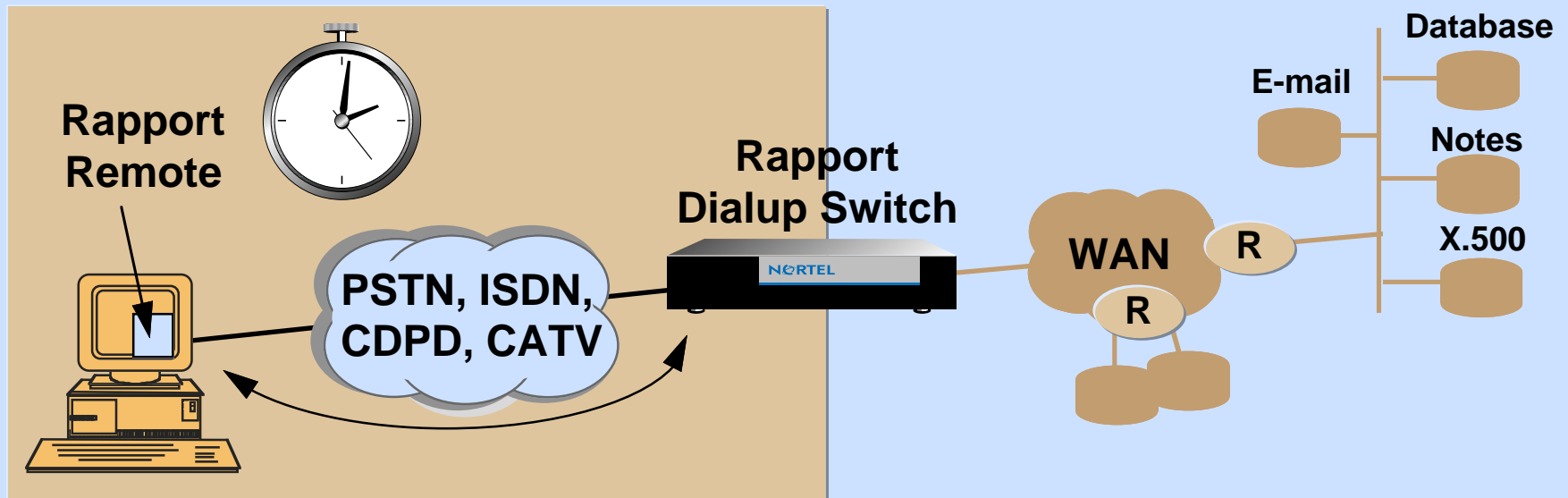
- **Distributed processing architecture**
 - 68060 control and WAN processor
 - 68040 on each DSP access card
 - co-processors for encryption and compression
- **Software-defined modems using digital signal processors**



Software

- **Auto-detection between analog and ISDN calls**
- **Hunt group across available ports**
- **Operating software and configuration are downloadable**
- **Multiple images stored locally in flash memory**

Rapport Remote and Dialup Switch



- Minimize overhead
- Data compression
- Exclude unnecessary broadcast packets
- On Demand Connections™ for minimizing ISDN holding charges
- Service engineering for local calls, not long distance, 1-800

Rapport maximizes user satisfaction

Rapport Authentication Services

