Unlocking the Power of New Communications Technology

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CTO-Verizon Communications

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Verizon Fact Sheet

2001 Operating Revenues:	$67.2 B
Employees:	~250,000
Domestic Telecom: ($43.1 B)	
U.S. Markets Served:	32 States & DC
U.S. Access Lines:	61+ M
Households:	31+ M
DSL Lines:	1.2+ M
Long Distance Customers:	7.4+ M
Wireless: ($17.4 B)	
U.S. Wireless Customers:	~30 M
U.S. Markets Served:	97 of top 100
International: ($2.3 B)	
Nations w/Verizon Investment:	19
Nations w/Verizon Presence:	40
Information Services: ($4.3 B)	
Directory Titles:	2300
Domestic Circulation:	106 M
International Circulation:	44 M

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verizon

"Any sufficient advanced technology is indistinguishable from magic."

Arthur C. Clarke

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State of the Industry

- Economic Recession
  - Reduced Capital Spending
  - Reduced Venture Capital
  - How Do We Fund Investment and Innovation?
- Revenues Are Down
- Industry Restructuring
- Investor Concerns
- Bubbles Have Burst

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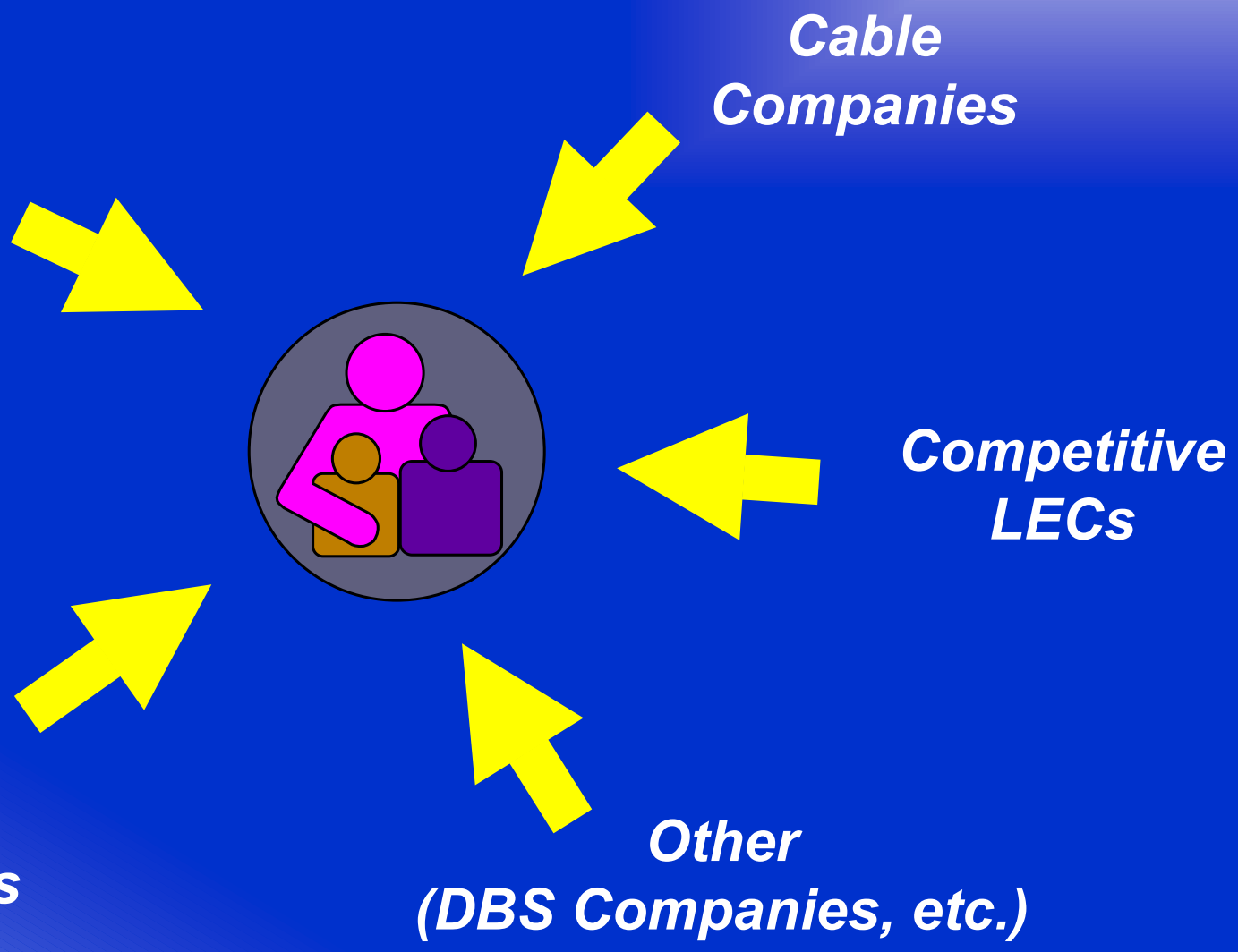
Competitive Environment



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Consumer Technology Requirements

- One Stop Shop for All Services
  or
- Shop for Select Services
- Information/Entertainment Access
- Mobility
- Control
- Convenience
- Ease of Use

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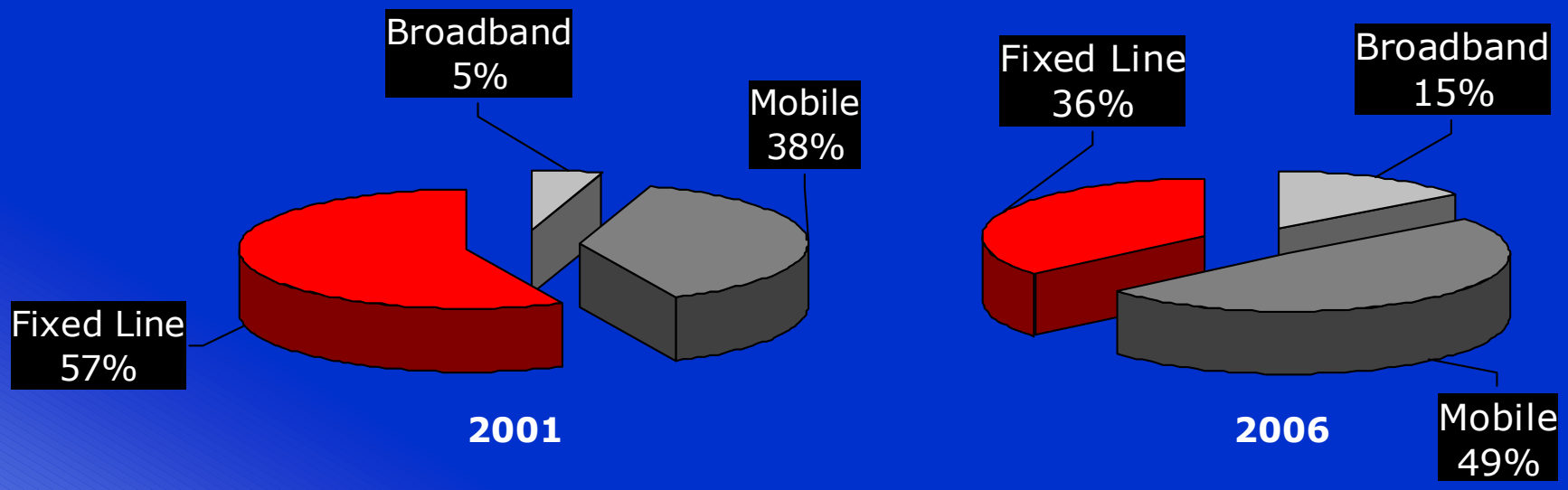
What a Difference a Few Years Makes

More People are Communicating in More Ways

Proportion of Typical Household Spending on Electronic Communications



Source: Forrester Research

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Business Technology Requirements

- Increase Productivity
- Maintain/Reduce Cost
- Mobility/Transparency
- Service and Network Control
- Security
- Evolve to Next Generation Technologies

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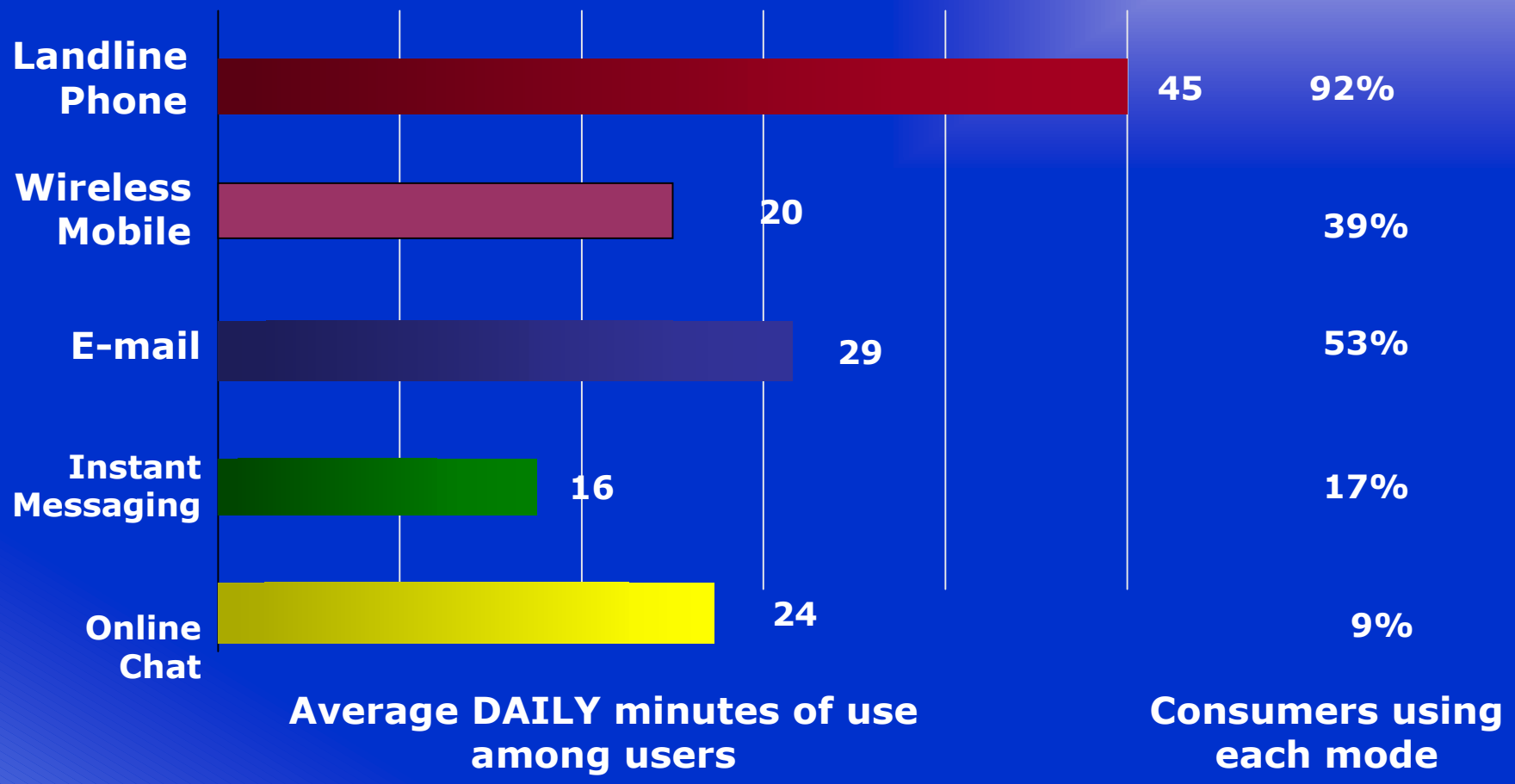
Regular Voice and Alternate Communication Modes



Source: Forrester Research and Sixth Annual CMRS Competition Report Wireless Competition Report (FCC 01-192)

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Network Requirements

- Broadband Access
- Flexible Converged Service Access
- Versatile, Cost Effective and Low Maintenance Transport Infrastructure
- Packet Capable Core Network
- New Services:
  - Converged
  - Broadband Vertical
- Service Management:
  - Network "Through the Edge"
  - Customer

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The Road to Convergence

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(Some) Technology Initiatives

Access	• DSL • Broadband Fixed Wireless • Fiber-To-The-Premises (FTTP) • Converged Access • DWDM

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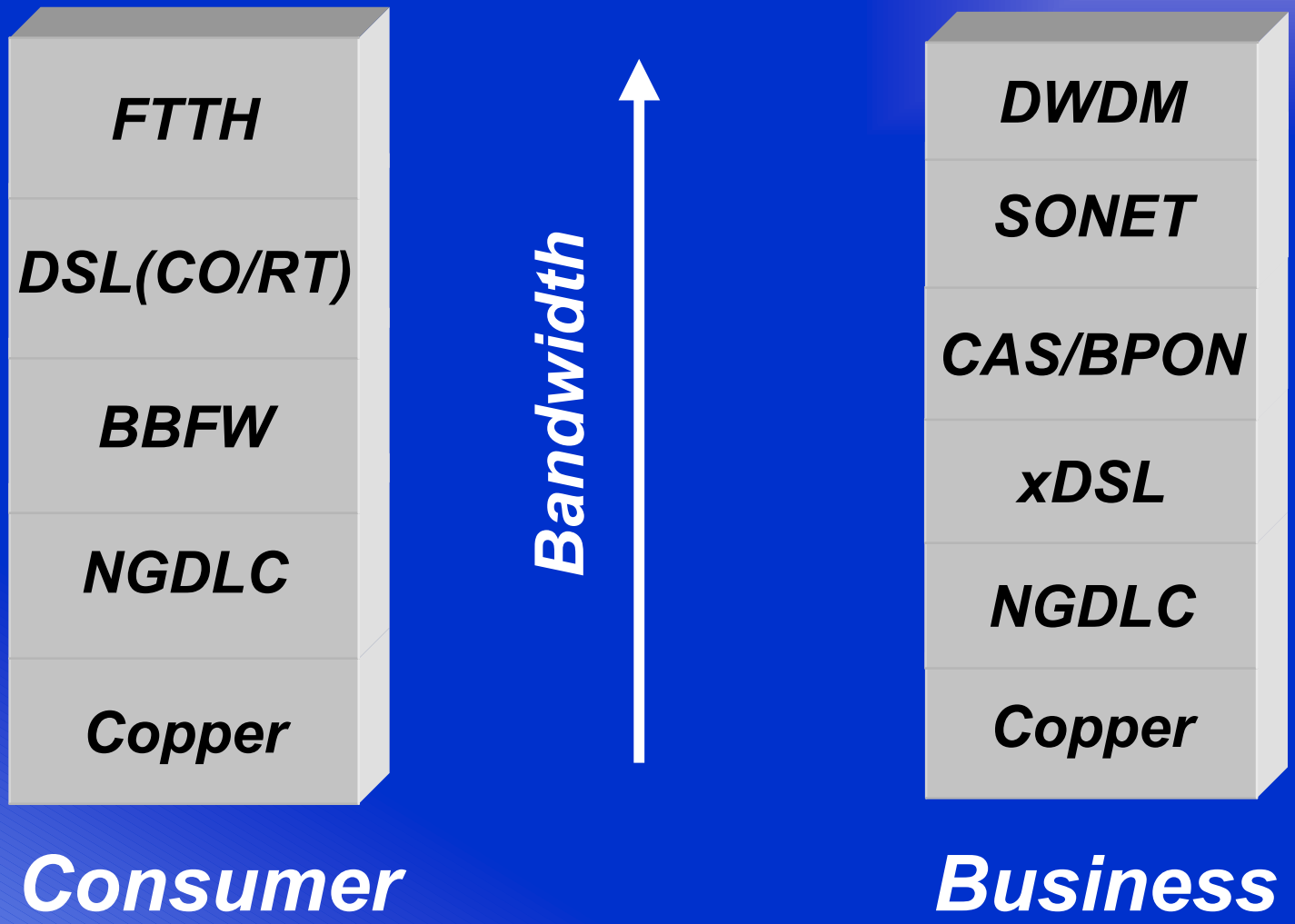
Access Alternatives



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(Some) Technology Initiatives

Access	• DSL • Broadband Fixed Wireless • Fiber-To-The-Premises (FTTP) • Converged Access
Core	• DWDM • Multi Service Provisioning Platform (MSPP) • Optical Switching

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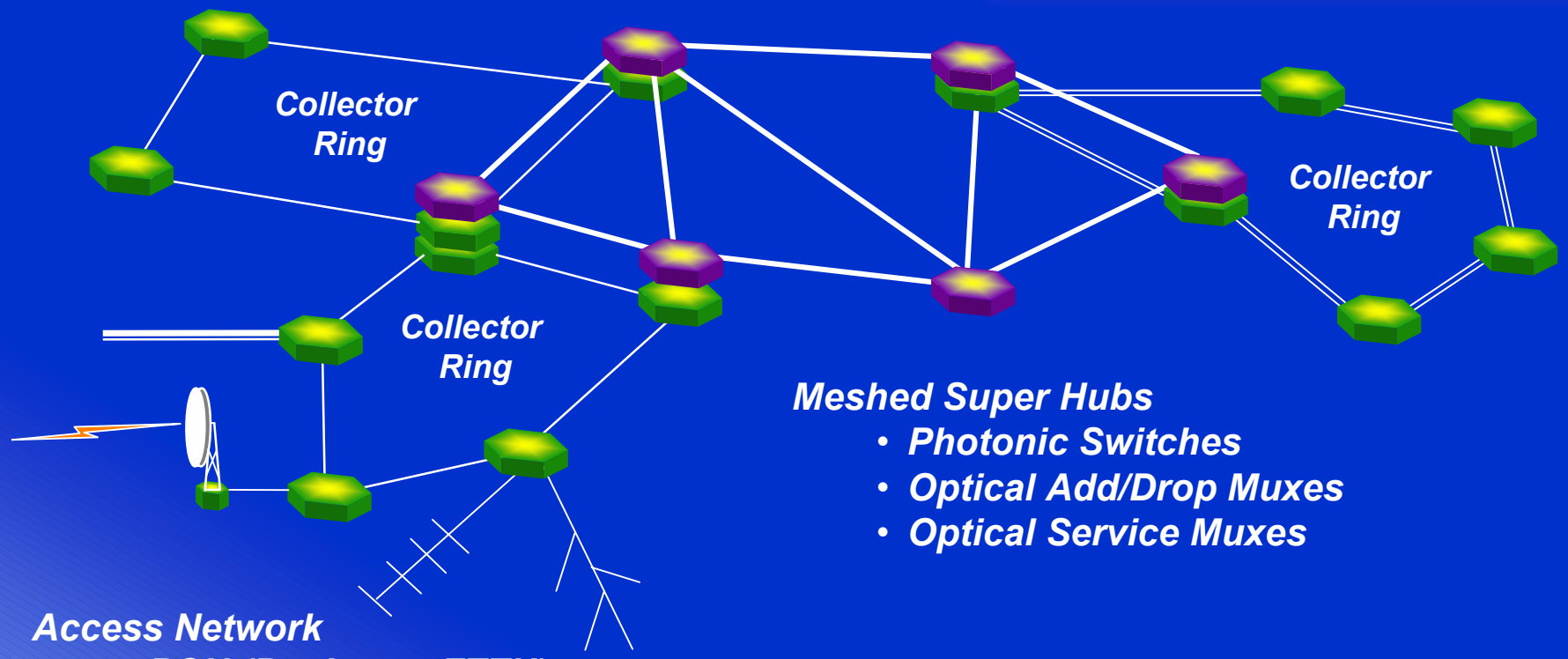
Target Transport Network



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(Some) Technology Initiatives

Access	• DSL • Broadband Fixed Wireless • Fiber-To-The-Premises (FTTP) • Converged Access
Core	• DWDM • Multi Service Provisioning Platform (MSPP) • Optical Switching
Data	• Gigabit Ethernet • IP Networking (Including VPN) • Multi Protocol Label Switching (MPLS)

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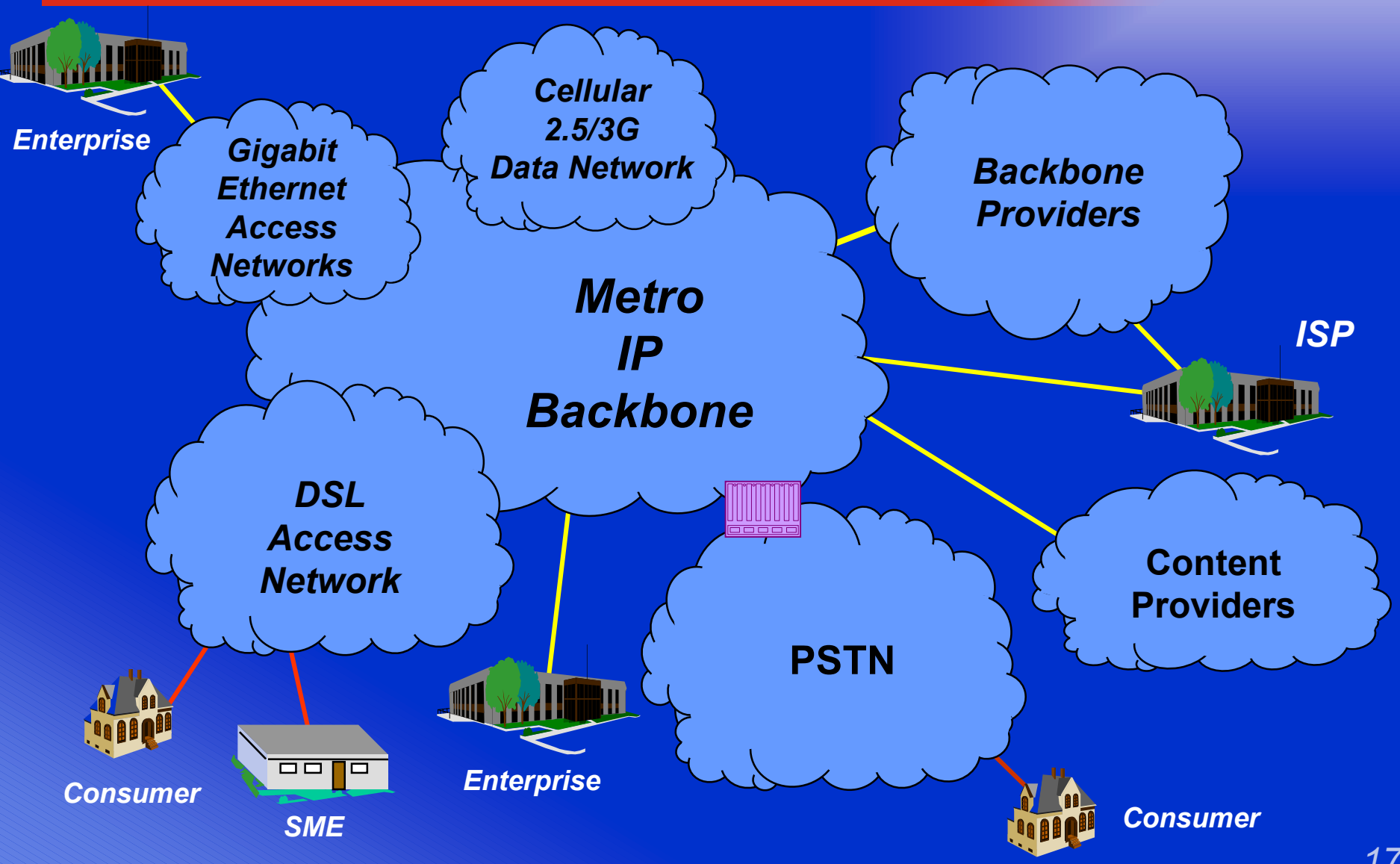
Metro IP Networking



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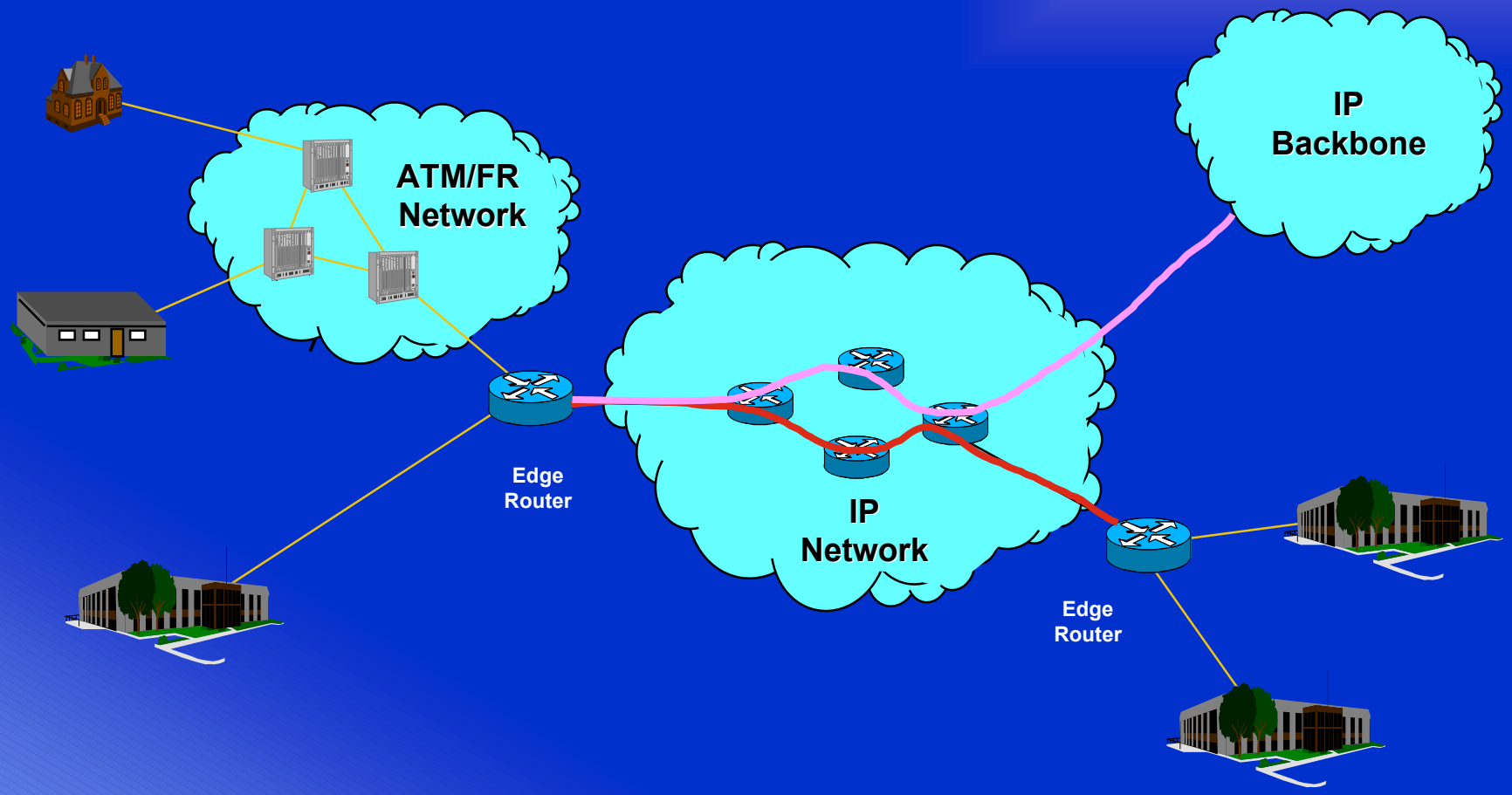
Multi Protocol Label Switching (MPLS)



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(Some) Technology Initiatives

Access	• DSL • Broadband Fixed Wireless • Fiber-To-The-Premises (FTTP) • Converged Access
Core	• DWDM • Multi Service Provisioning Platform (MSPP) • Optical Switching
Data	• Gigabit Ethernet • IP Networking (Including VPN) • Multi Protocol Label Switching (MPLS)
Other	• VoIP • Integrated Access Devices (IADs) • Softswitch • Unified Communications • Broadband Vertical Services

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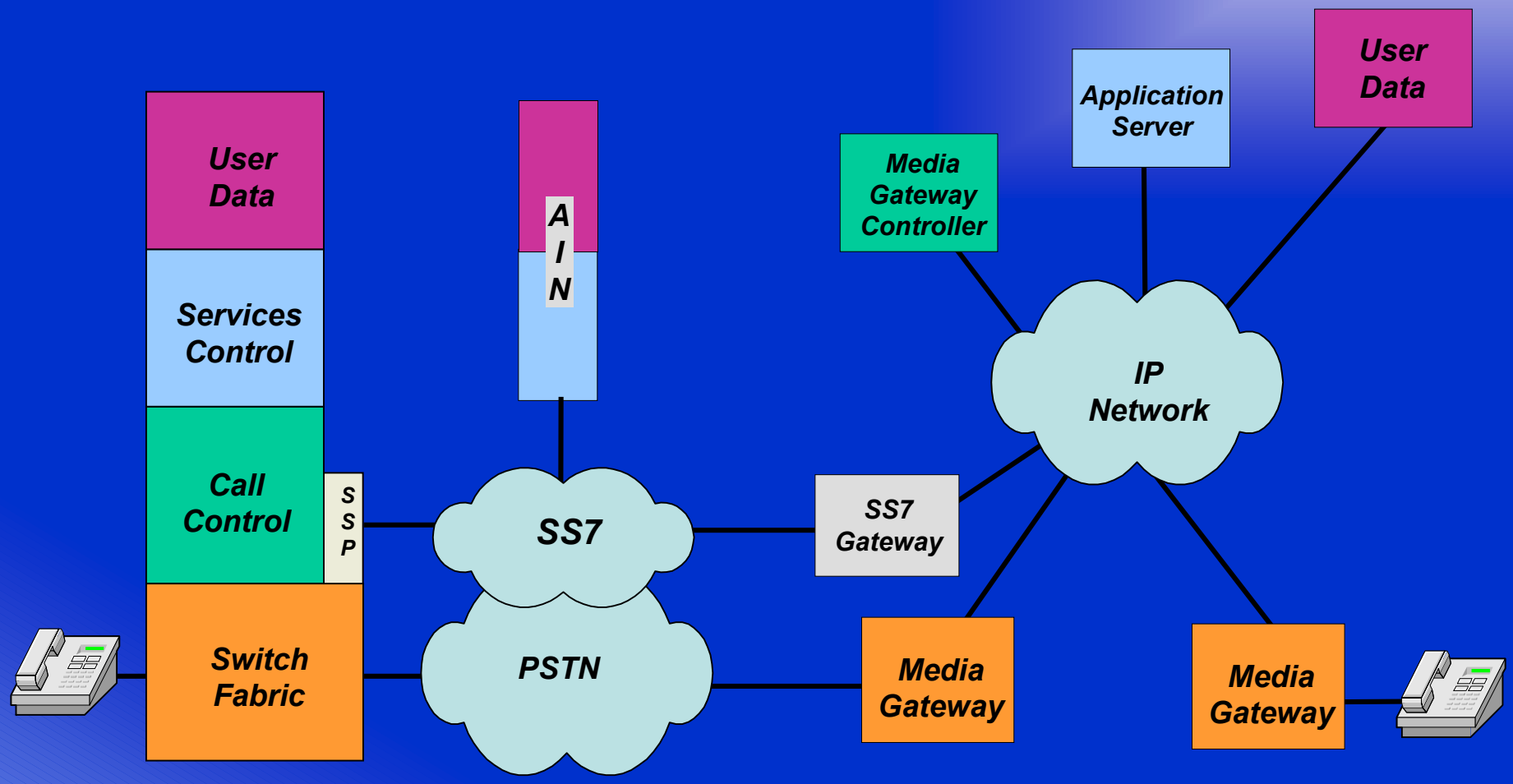
Softswitch Architecture



Circuit Switch

SoftSwitch

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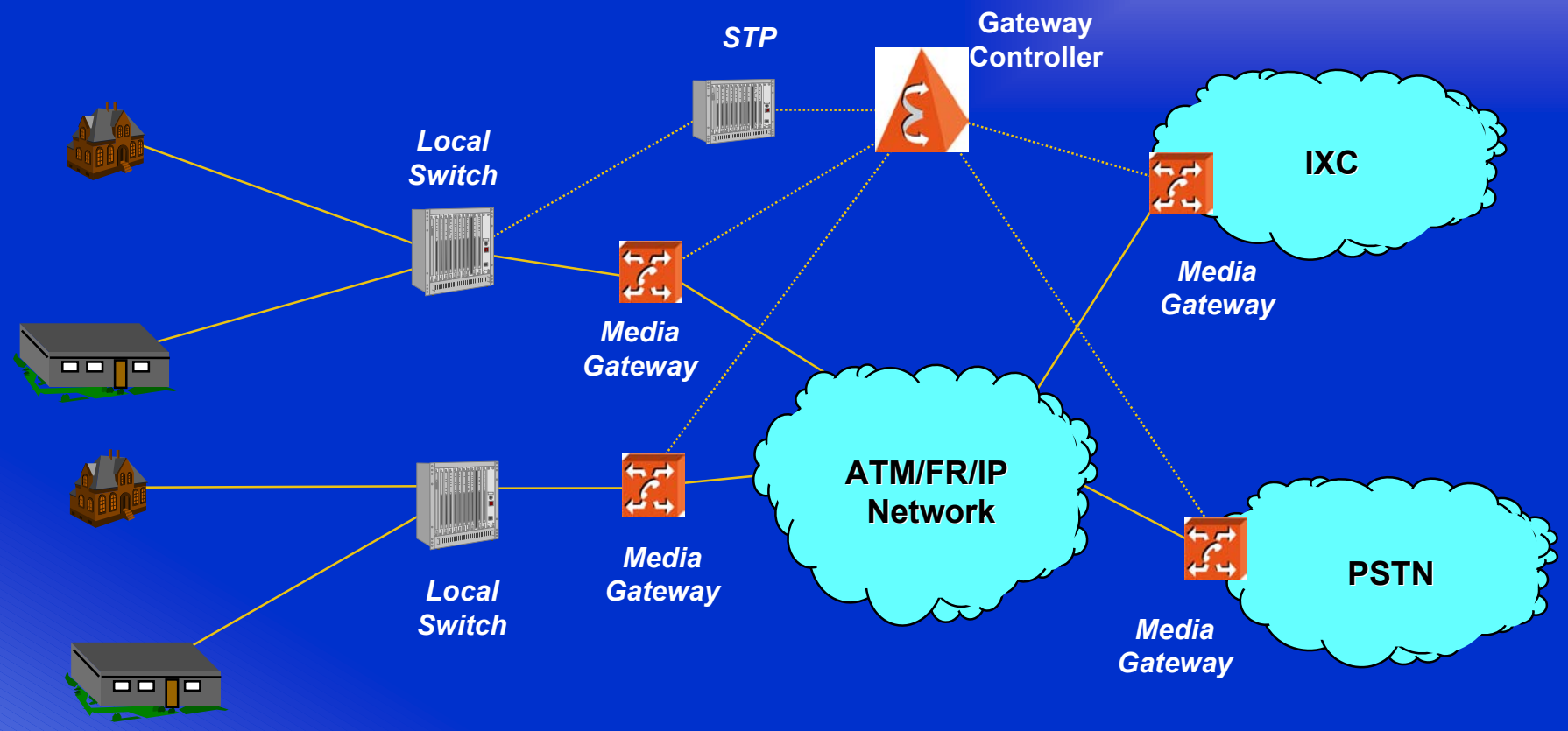
VoATM Tandem



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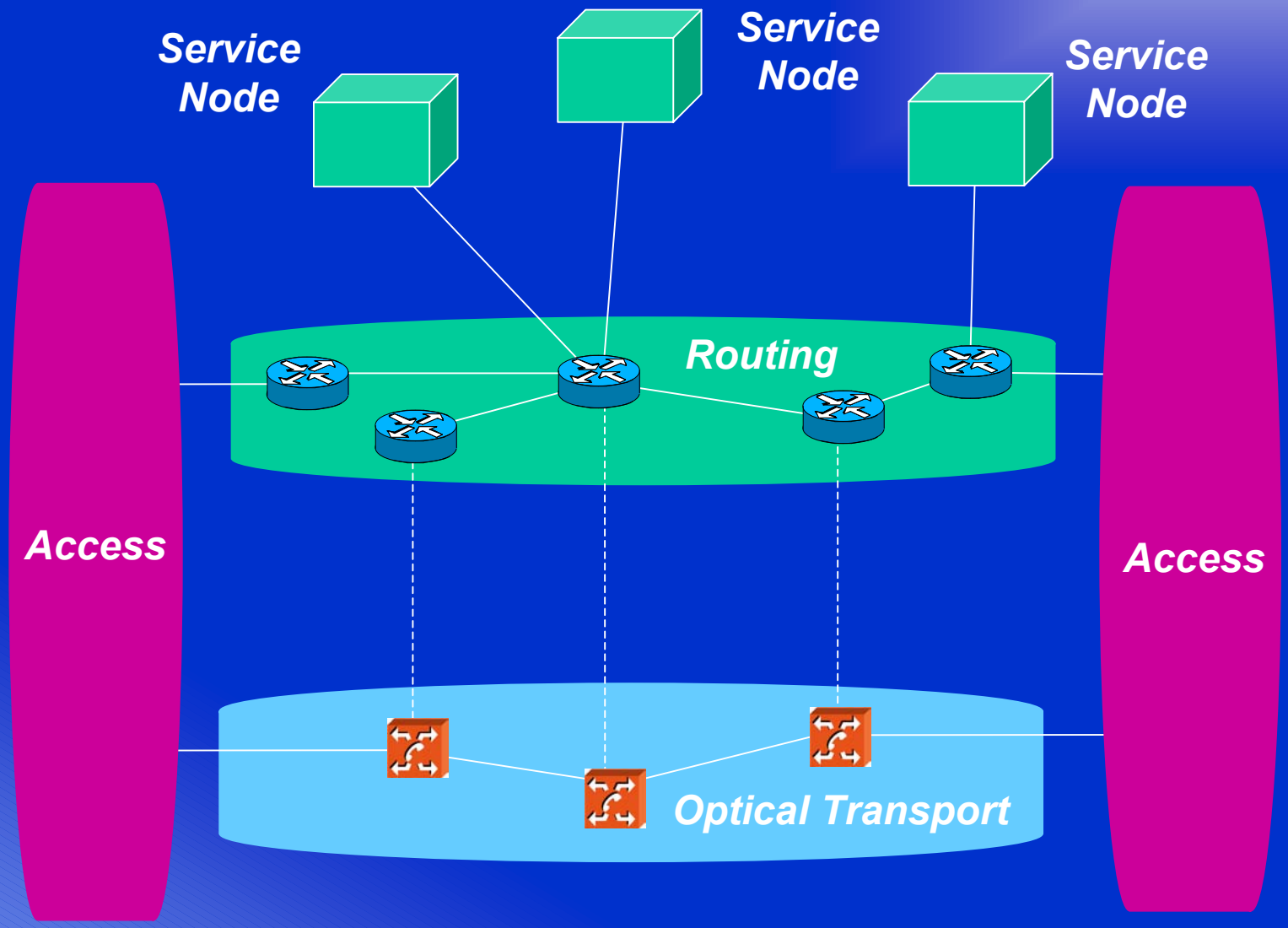
Reference Architecture



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Roadblocks to Realizing New Technology Opportunities

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Roadblocks to Realizing Opportunities

Operations Integration

- Heterogeneous Equipment
- Legacy Operations Support Systems
- Staff Training (At Scale)
- NGN Sophistication

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Roadblocks to Realizing Opportunities

Financial

- Tight Capital -- Too Many Opportunities
- Expense Pull Through for "Rollover"
- Fear of Installing Newer Equipment Too Soon
- Shortened Life Cycles

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Roadblocks to Realizing Opportunities

Regulatory

- More Control Over Pricing
- Design and Deployment Flexibility
- Parity in Regulatory Process
- Removal of Uncertainty
- Freedom from Legacy Regulation

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Verizon Strengths

- Scale & Scope
- Network Evolution Plan
- Understanding Stakeholder Requirements
  - Customers
  - Shareholders
  - Suppliers
  - Regulators
- Heritage & Culture

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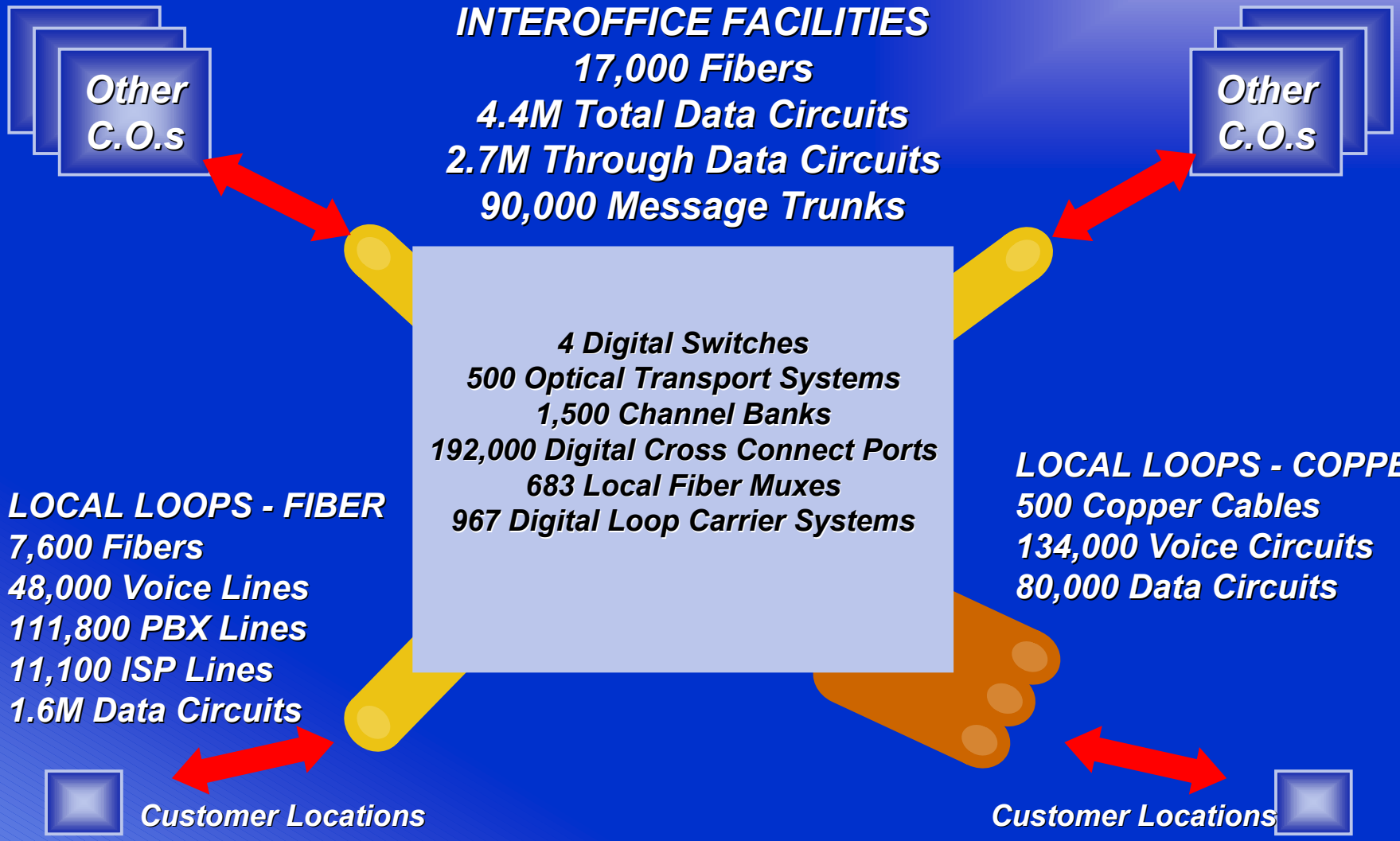
140 West St.



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Conclusion

- Times Are Tough (Right Now)
- Customer Requirements Continue To Grow
- We Have the Building Blocks for NGNs
- Must Continue Our Work to Refine, Design and Deploy
- Keep Innovation Alive

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