

Embracing Change: The Advent of Ubiquitous Networks

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A Century of Transformation

- **Verizon has been in business for over 100 years**
- **Owns and operates facilities-based networks**
- **Undergoing a fundamental shift through convergence and integration**

A Century of Transformation

- **Driving toward ubiquitous networks:**
 - **Wireline phone**
 - **Wireless phone**
 - **Personal computers**

Today's Communication Environment

Wireline Phone



- *Telephony*
- *Messaging*
- *Directory*
- *Alerts*
- *Easy Setup and Operation*
- *Service Quality*
- *Service Support*

Wireless Phone



- *Telephony*
- *Messaging*
- *Directory*
- *Alerts*
- *Easy Setup and Operation*
- *Service Quality*
- *Service Support*

PC

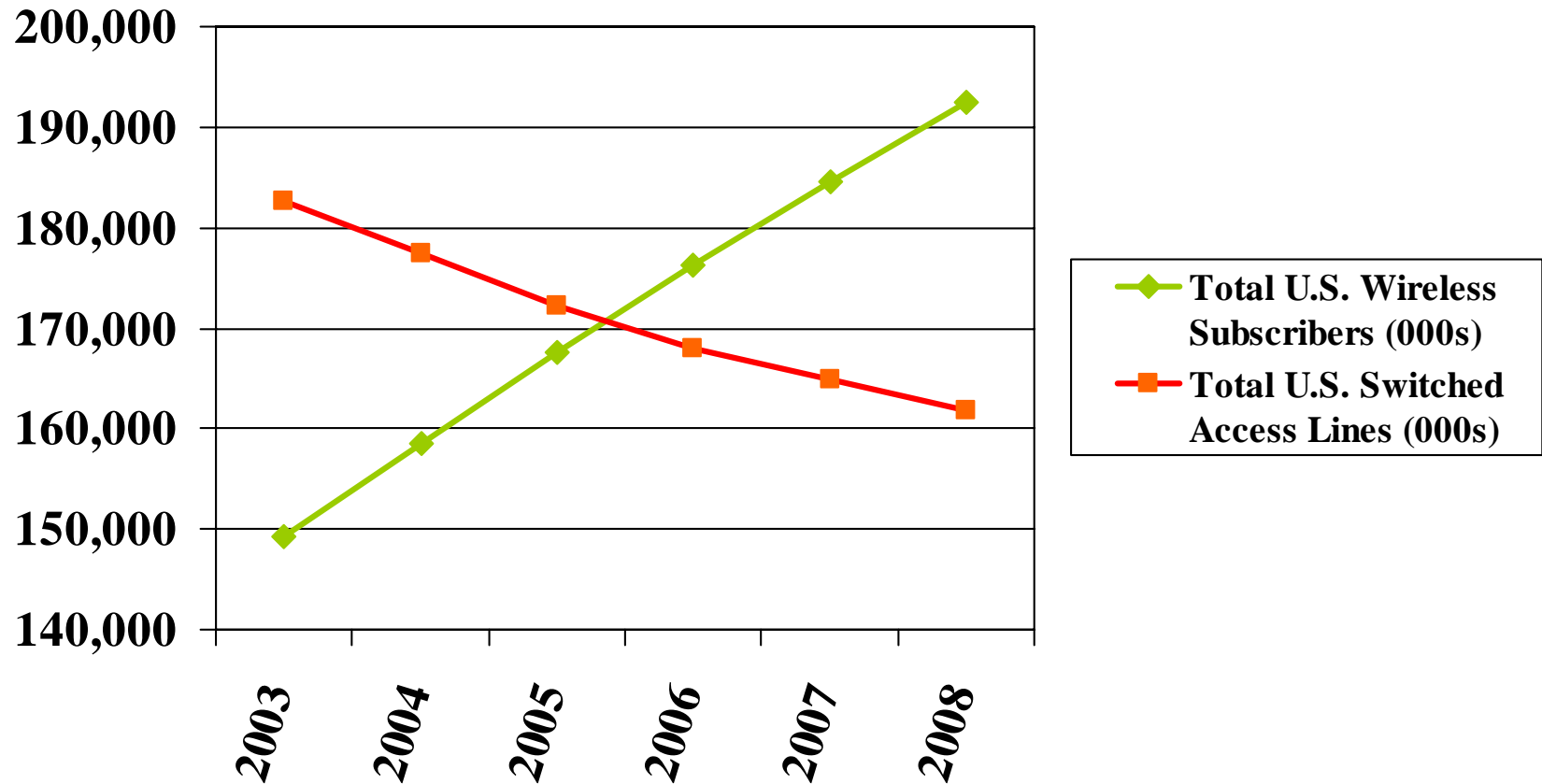


- *Instant Messaging*
- *Chat*
- *Web Conferencing*
- *Collaboration*
- *E-mail*
- *Directory*
- *Alerts*
- *Easy Setup and Operation*
- *Service Quality*
- *Service Support*

The Present

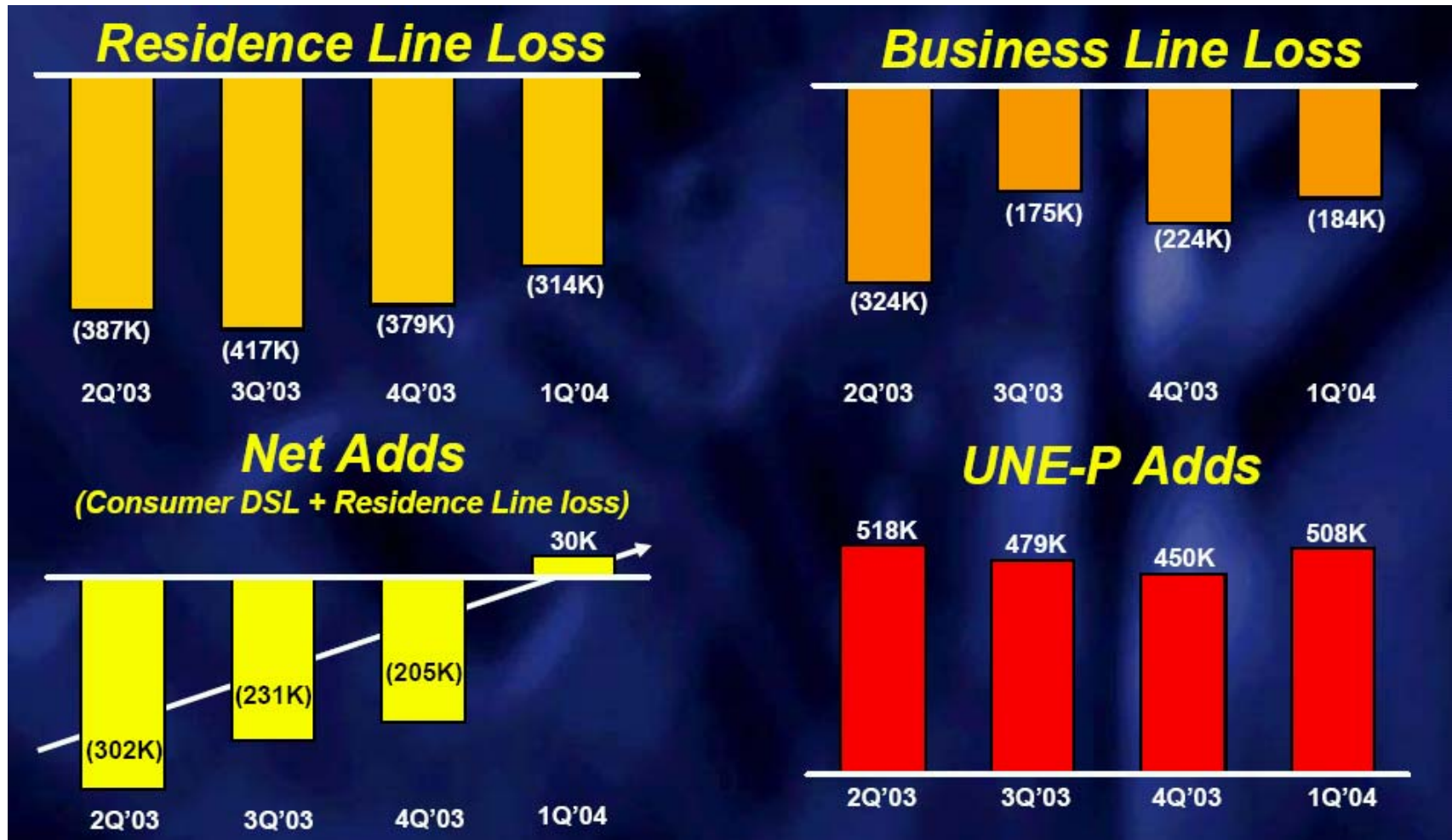
- **Approximately 100 million Americans are connected to a Verizon network at some point each and every day**
- **46 million of our telephone lines are equipped with DSL**
- **More than 36 million people use Verizon wireless**
- **Serve more than 7 million small businesses**

Transformation is Underway

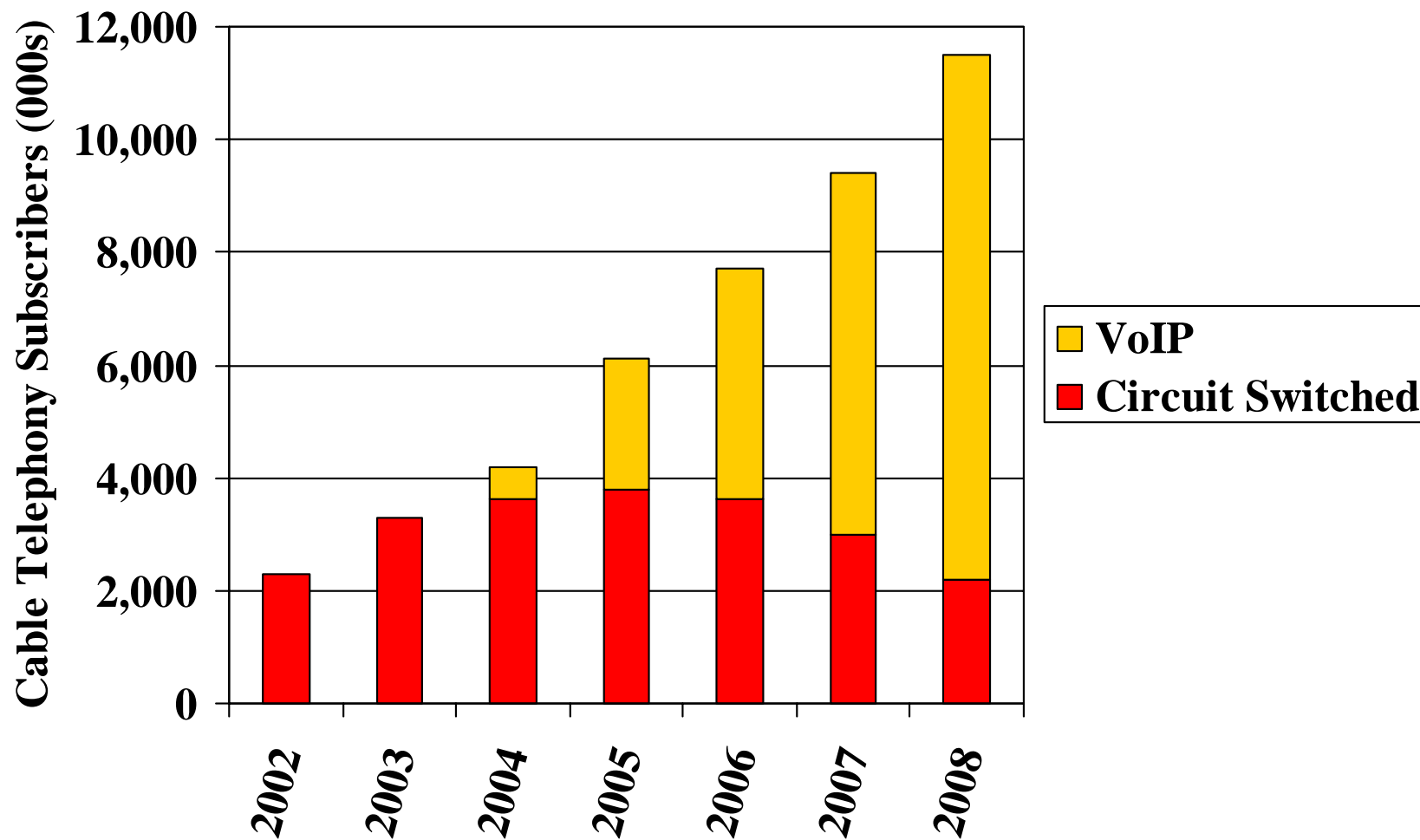


Source: Instat MDR, 'Cutting the Cord', February 2004

Access Line Decline

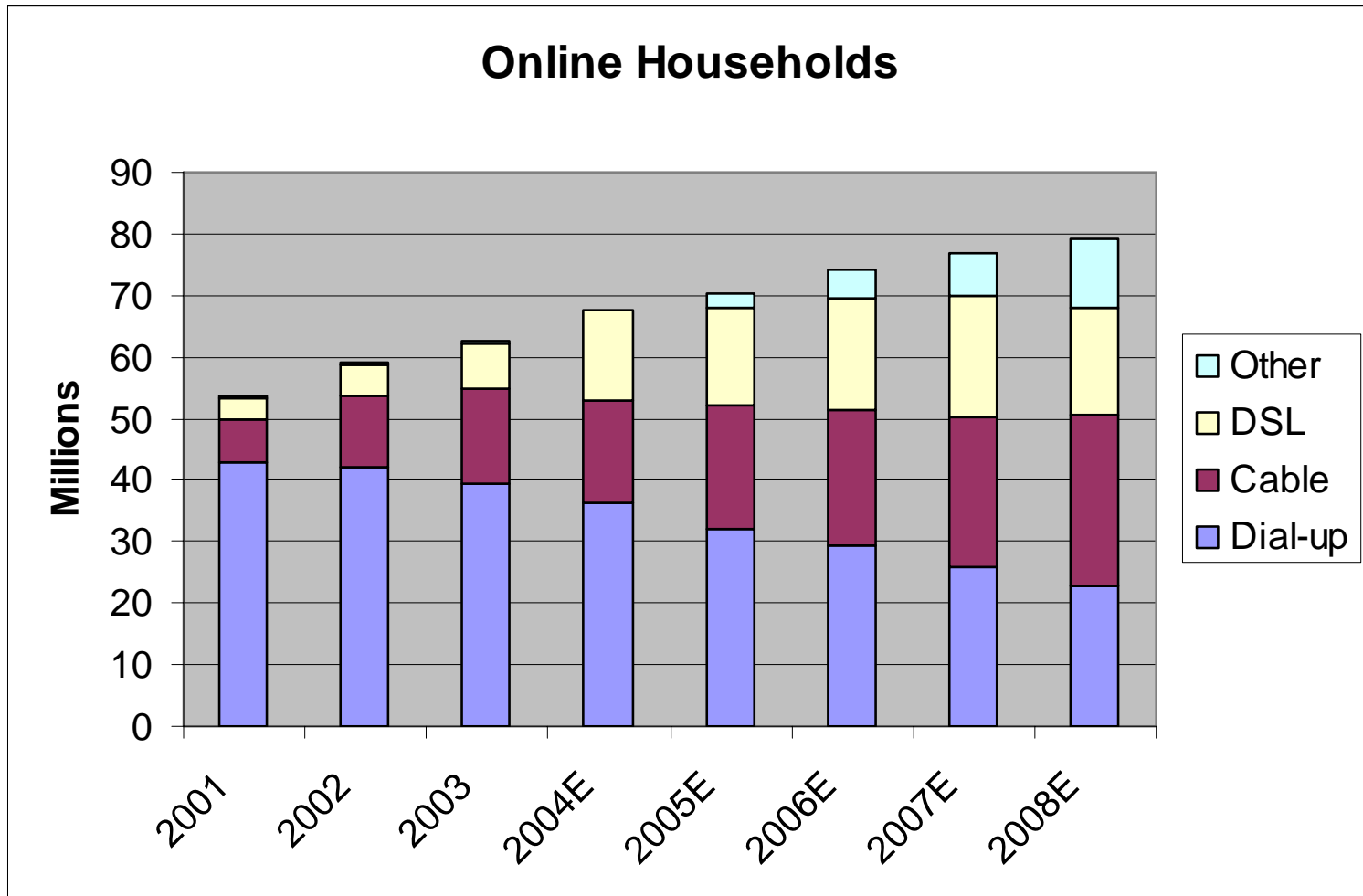


Cable Telephony Growth



Source: Frost & Sullivan, 'North American IP Cable – Is Cable Able?', January 2004

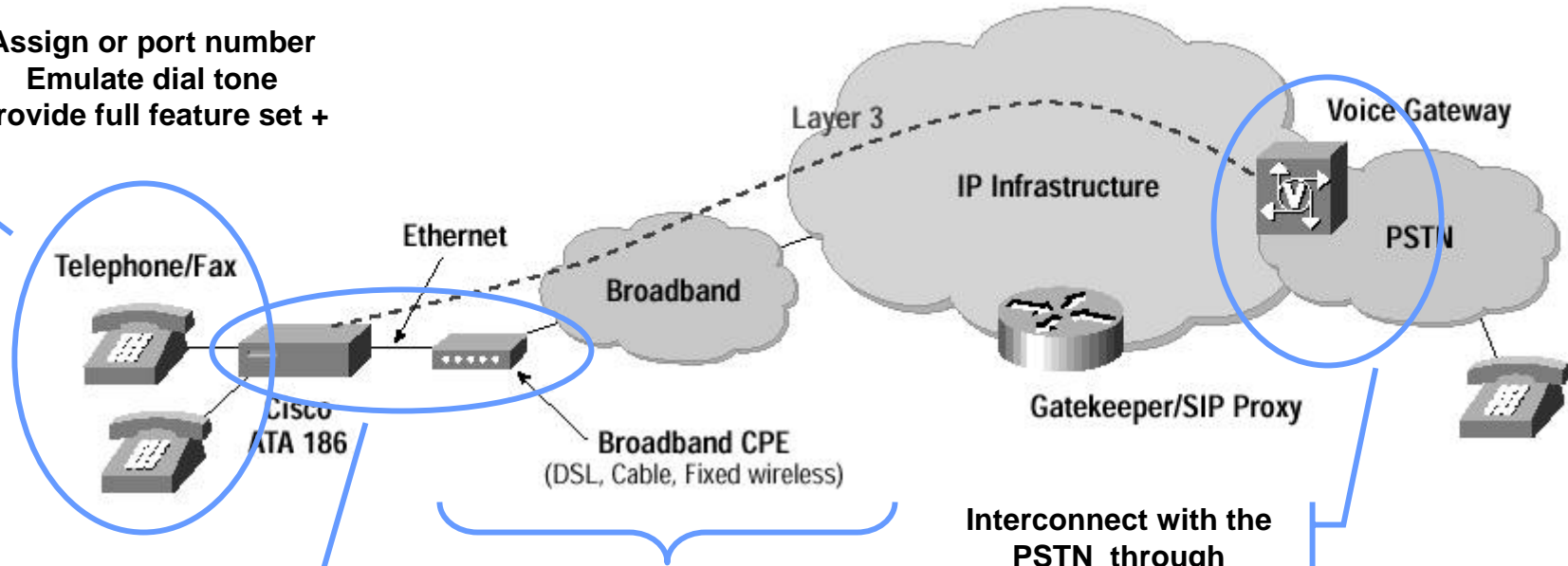
Broadband Continues to Grow Rapidly Replacing Dial-Up Internet Access



Source: Smith Barney, "Cable MSOs Leaving A Lot of Food on the Table", April 28, 2004

Broadband Connections offer a platform for many competitive telephone services...

Assign or port number
Emulate dial tone
Provide full feature set +



Plug into broadband router (e.g.) with inexpensive adapter

Traverse customer's broadband connection

Interconnect with the PSTN through gateways



Welcome to deltatree's consumer site, iConnectHer

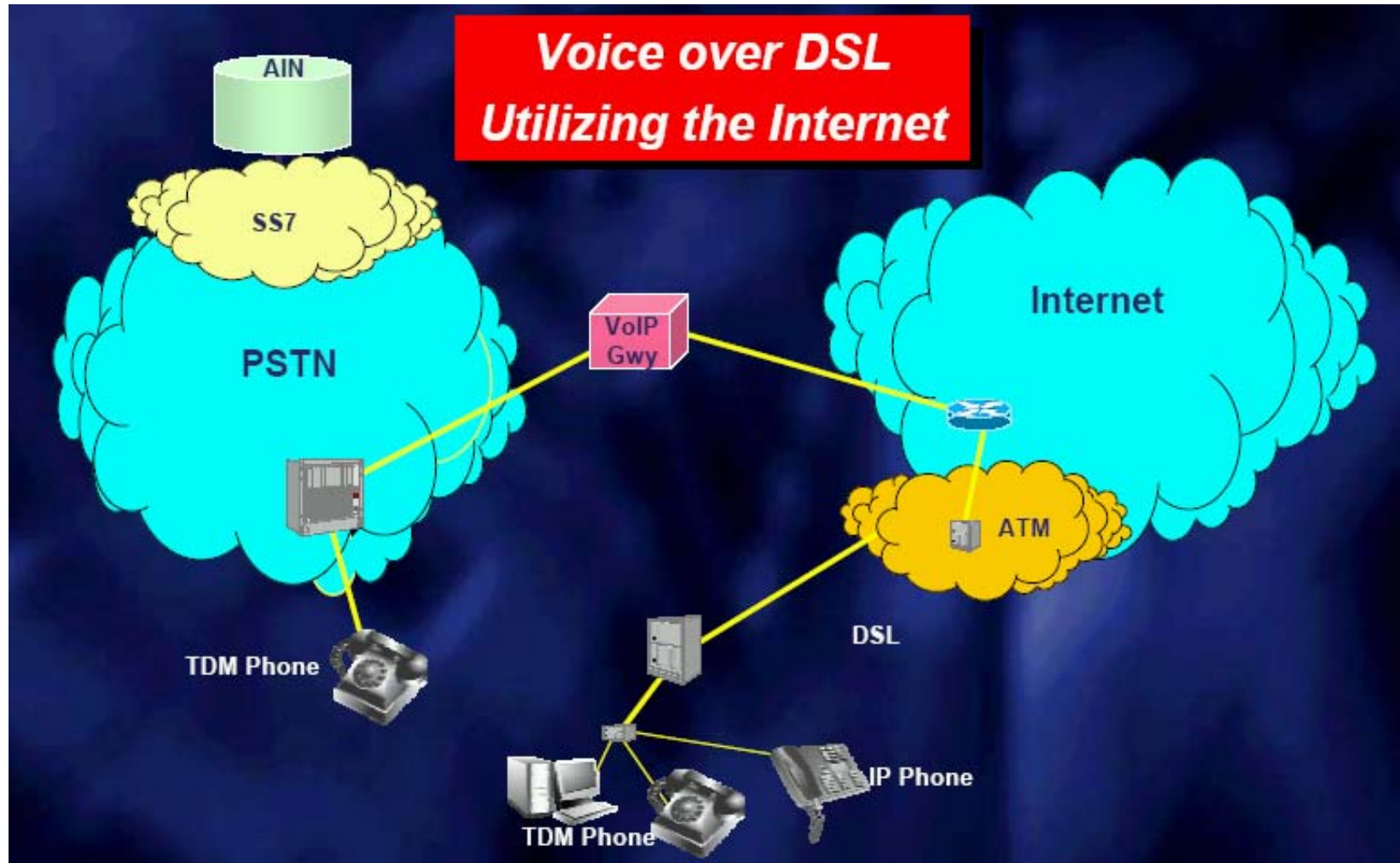


DSL

- **Successful competitor to cable modem service**
- **Uses existing copper wire outside plant**
- **Internet access while using your phone**
- **Added 1.5 million new subscribers in 2004**

VoiceWing Consumer Broadband VoIP

Available over any broadband Internet Connection!



Lighting Up The Future: Fiber-To-The-Premises (FTTP)

- **FiOS services: super fast connectivity**

- **Downstream / upstream**

5 mbps/2 mbps

15 mbps /2 mbps

30 mbps / 5 mbps

Applications

online research, file transfers, telecommuting, music downloads, photo sharing

video conferencing, interactive gaming, music and video downloads

web hosting, music and video sharing, data backups, large file sharing

FTTP / FiOS ...

- **Currently deploying in 13 states**
- **Planning to pass 4 million homes by year-end 2005**
- **FiOS services**
 - **Video**
 - **Standard and premium channels**
 - **HDTV**
 - **Video-on-demand**
 - **Approximately 300 digital channels**
 - **Internet access**
 - **Speed tiers up to 5, 15 or 30 mbps**
 - **Telephone service**
 - **Customers can keep existing numbers and services**

Platform to Deliver Next Generation Services

Basic & Advanced TV Services

- Broadcast channels
- Premium channels
- PPV
- VOD
- HDTV
- PVR

Basic & Advanced Data Services

- Broadband data
- Symmetrical services
- Customized bandwidth
- Data/video convergence
- Home networking/
Managed Services

Complete Voice Services

- Local
- Long distance
- Features

Plus Wireless Bundling

FTTP Enabled Customers



Transforming Wireless into Broadband Multimedia Services

- **Consumer Data Devices**
 - More PC cards, modem solutions, E-mail devices
 - Handsets/devices for video, music and content
 - 1X: 100% of phones sold; 63% of base
- **Picture Messaging**
 - More models, more pixels
 - Video messaging
- **E-Mail, SMS**
 - Color Blackberry and Treo
 - IM: all 3 major IM services
 - 100% of handsets sold are text capable
- **Get it Now**
 - More handsets, more apps
 - 400 unique downloadable apps
- **Push to Talk**
 - Expanded lineup
- **Global Phone**



Wireless Broadband Multimedia

- **In 2003, launched third generation wireless broadband network:**
- **EV-DO (Evolution-Data Optimized)**
- **February 1, 2005, launched video-on-demand service: V- Cast**
 - **32 markets**
 - **Available to 75 million people / expand to 150 million by year-end 2005**
 - **Committing \$1 billion in 2005-2006 for nationwide rollout**

Wireless Broadband Multimedia

- **Average download speeds: 300 – 500 kbps**
 - Streaming video (up to 5 minutes)
 - Advanced messaging, imaging and data transfer
 - Megapixel camera and video functions
- **Transmission speeds: capable of bursts up to 2.0 bps**
- **Recently launched mobile television services**
 - One-minute “mobisodes”
 - Delivering at least 15 frames per second

Integrated Communications Services → Iobi



Iobi



- **Iobi enables users to manage communications from their wireline and wireless phones, computers and PDAs**

- **Links devices into one seamless personal communications network:**
 - **Call and voice-mail management**
 - **Users decide how, where and if to receive calls as they come in**
 - **Notification on computer or mobile device, with ability to choose and prioritize**

Iobi...



- **Display of incoming calls**
 - **Including caller ID information on computer or mobile device**
- **Programmable call forwarding**
 - **Users can schedule when and where calls will be forwarded**
- **Synchronize calendar and address book data.**
 - **Over multiple devices**

Verizon Ubiquitous Networks Vision

- **Link to devices – anywhere, anytime**
 - **Allow users to send or receive any information to or from any device at any time**
 - **Permit users to tap the intelligence of the network and make communication simple and ubiquitous**

Verizon Ubiquitous Networks Vision

- **Enable a new generation of flexible, highly-reliable services on our infrastructure**
 - **Health diagnosis/ monitoring**
 - **Interactive learning**
 - **Inventory / RFID**
 - **Multi-player games**
 - **Safety / location-based technologies**
 - **Voice-over-IP**
 - **Video messaging**
 - **Virtual private networks**

Verizon Ubiquitous Networks Vision

- **Increasingly powerful chips are fueling multimedia developments**
- **Dynamic, adaptable, innovative applications using converged networks and services on a global scale**
- **This, in turn, is driving**
 - **Digital content creation**
 - **Ubiquitous electronics and improved power supplies**
 - **More effective utilization of frequency spectrum and policies which promote technological innovation**
 - **Robust R&D in both public and private sectors**

Verizon Ubiquitous Networks Vision

- **Key issues for further consideration**
 - **Security**
 - **Authentication**
 - **Billing**
 - **Privacy / personal information**
- **Final thought: Ubiquitous networks involve not only changes in technology, but also of the entire social systems comprising legal frameworks, usage practices and value judgments.**

VERIZON COMMUNICATIONS

Thank You!

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