IMS Forum
The Voice of IP Convergence
www.imsforum.org

China VoIP 2006

The Evolution of IP Voice Technologies

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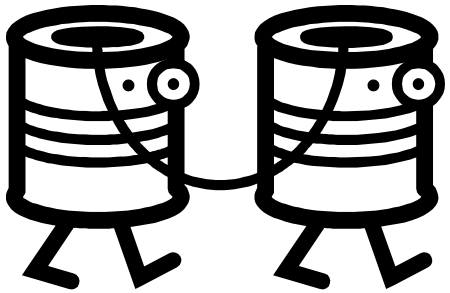
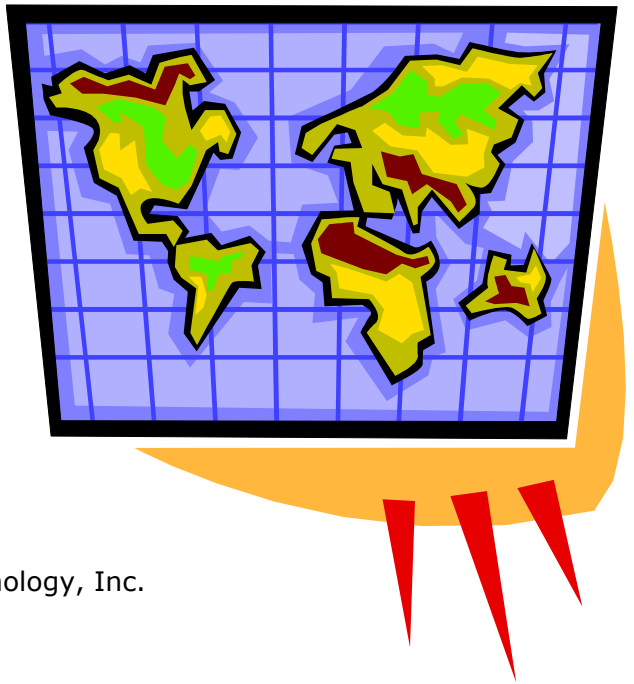
Roadmap

- Four-Step Evolution of VoIP Goals
- Four-Step Evolution of VoIP Architectures and The IMS Forum
- What We Need for the Future of Voice-over-IP
- How the Structure of the Industry Has Changed

First: Long Distance Bypass

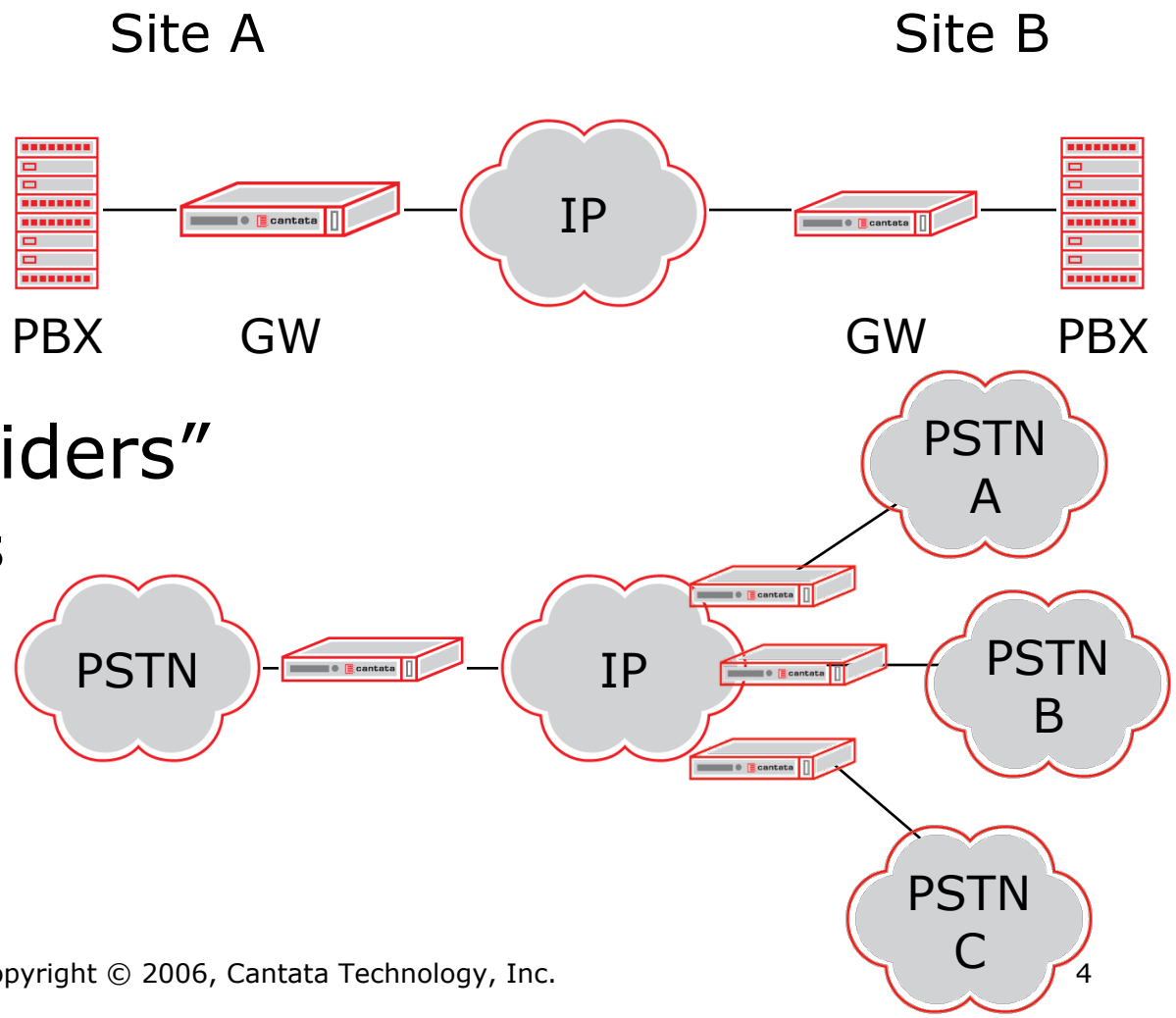
- Long Distance Calls Expensive
  - Switching and Transport Costs
  - Regulatory Costs
- International Calls Extremely Expensive
  - Regulatory Costs





How?

- Enterprises
- Independent "Service Providers"
  - FG-D, Access Numbers
  - International Back

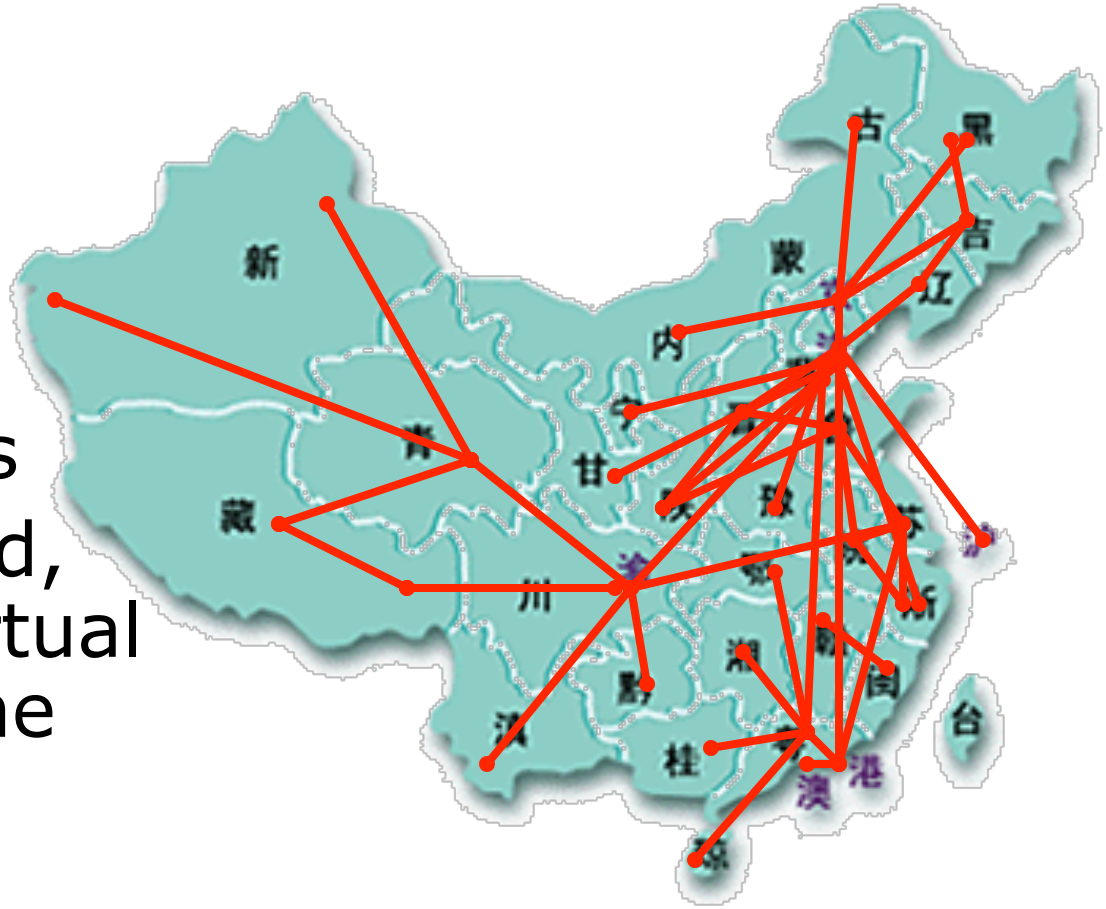


Drivers for First Phase

- Tariffs on TDM Traffic Encouraged Enterprises to Move Their Inter-Site Traffic to IP
- Tariff Arbitrage on TDM Traffic Encouraged International Call-Back
- Tariff on TDM Traffic Encouraged International Call-Back and Local Access Providers to Move to IP

Second: Early Carrier Long Distance

- Class 4 (Inter-Exchange) Replacement
- IP Transport Meets ATM Transport Costs
- Packet Switched, Rather than Virtual Circuits, Become Technically Feasible



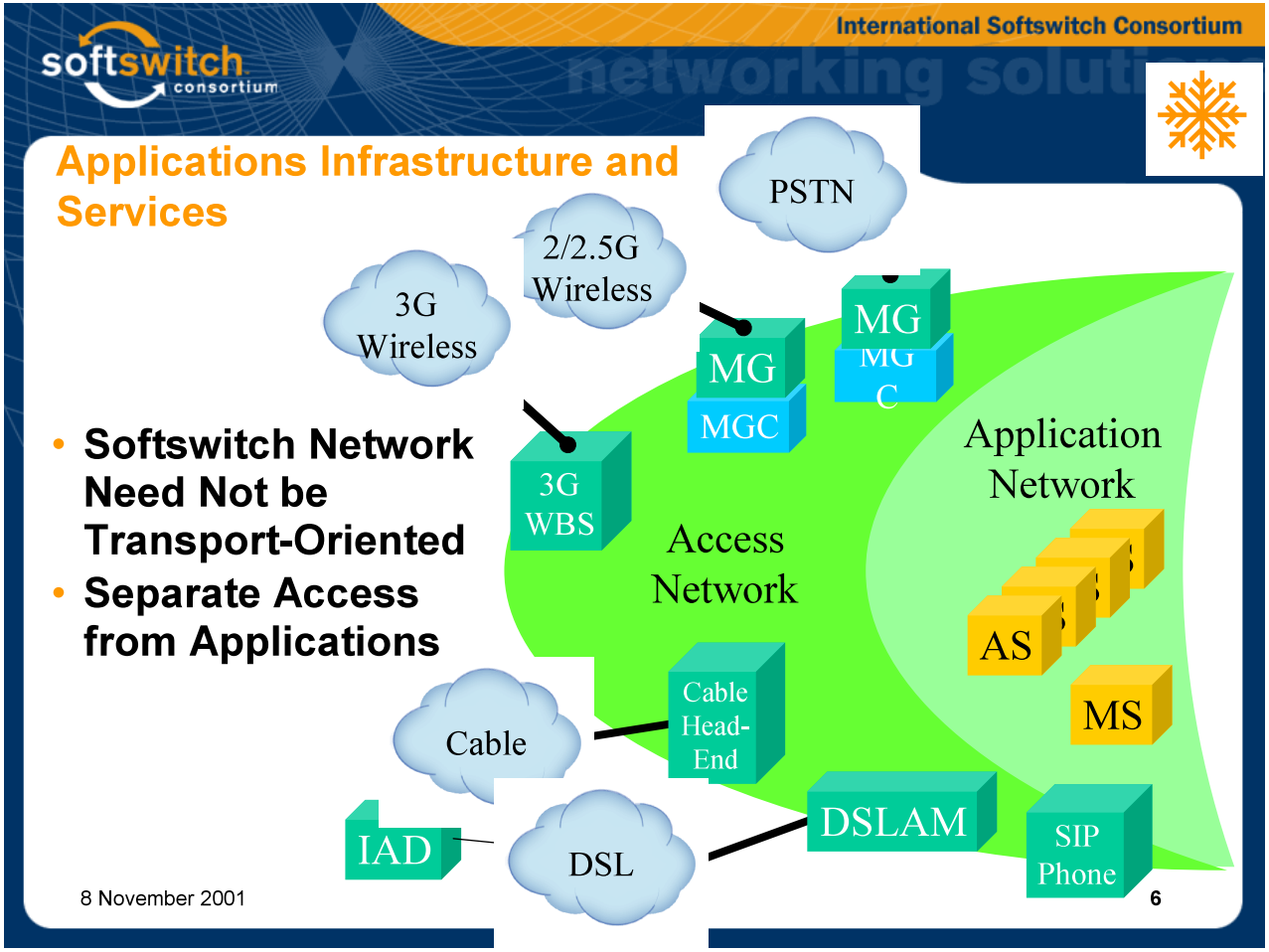
How?

- Avoid Tyranny of DS0 By Using IP Pipes
- Distributed Media Gateways
- "SoftSwitch Architecture"

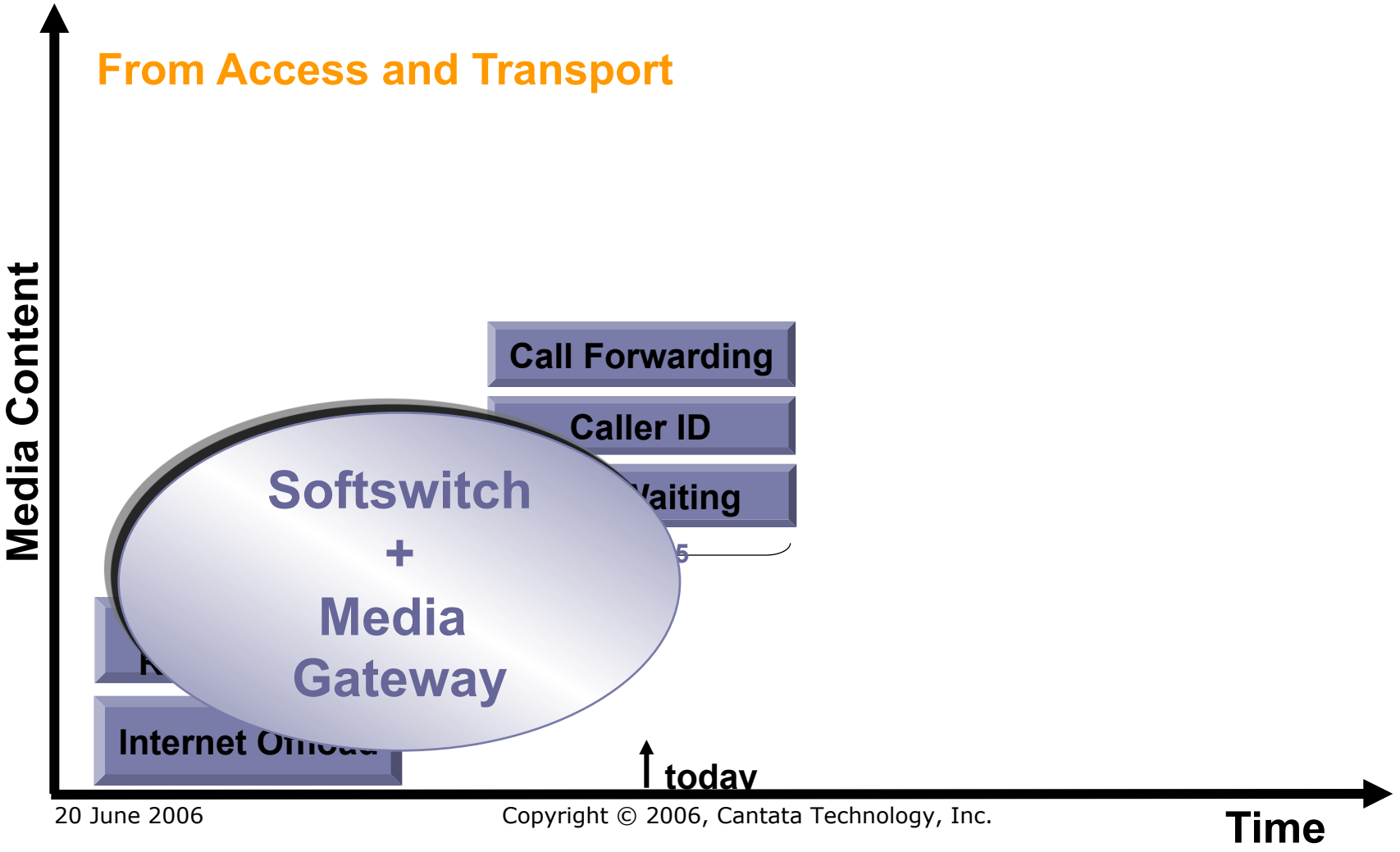
Where Was the Industry?

- International SoftSwitch Consortium
  - 180 Vendors Offering "SoftSwitches"
  - No One Knew What One Was
- ISC SoftSwitch Architecture v.1
  - Defined Terms, Component Functions
  - Described Basic Services
  - China VoIP 2001: Separation of Access Network from Applications and Services

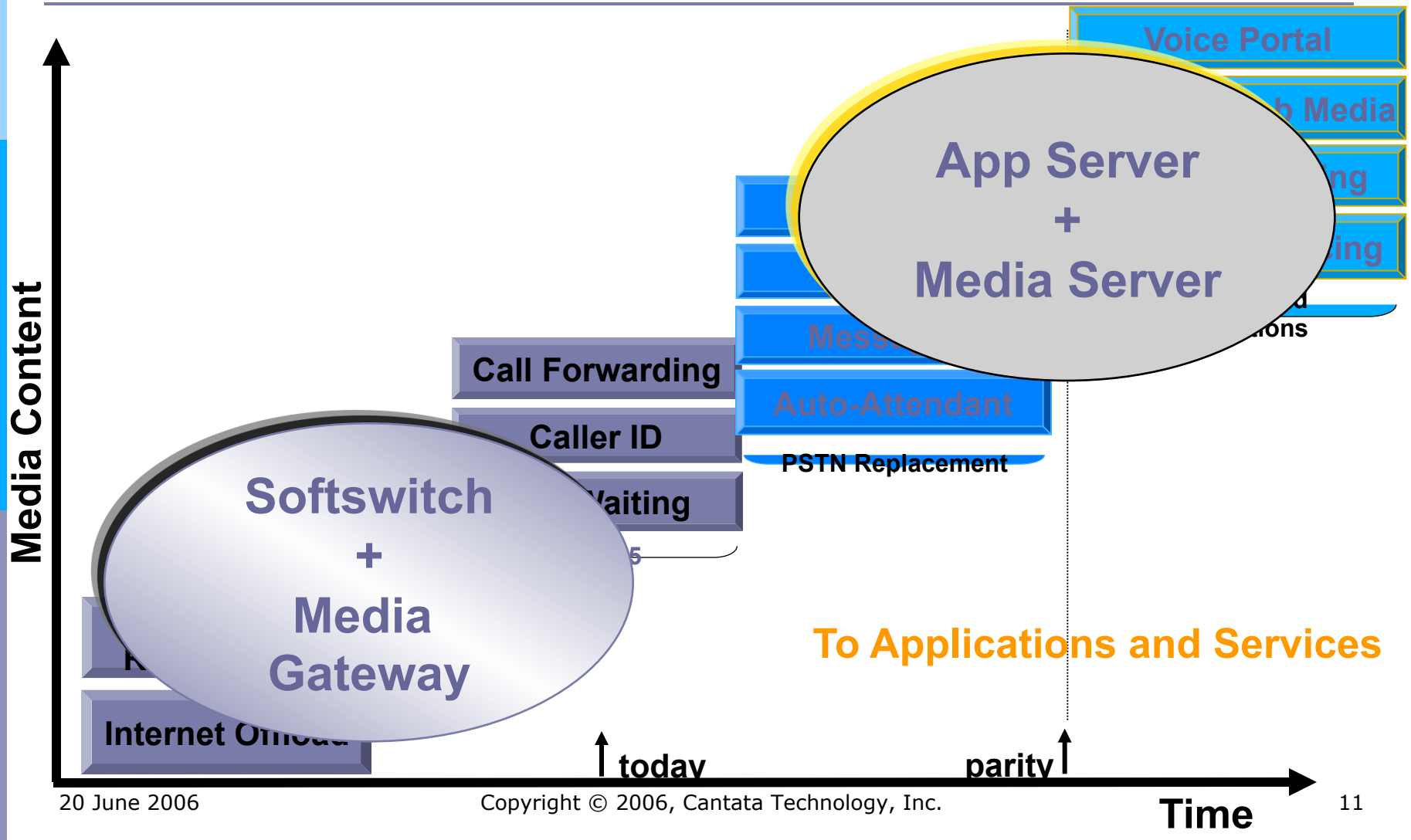
Access / Transport Separation (2001)



The Transition from Next Gen Network… (2001)



…To Service-Ready Network (2001)



International SoftSwitch Consortium (ISC)

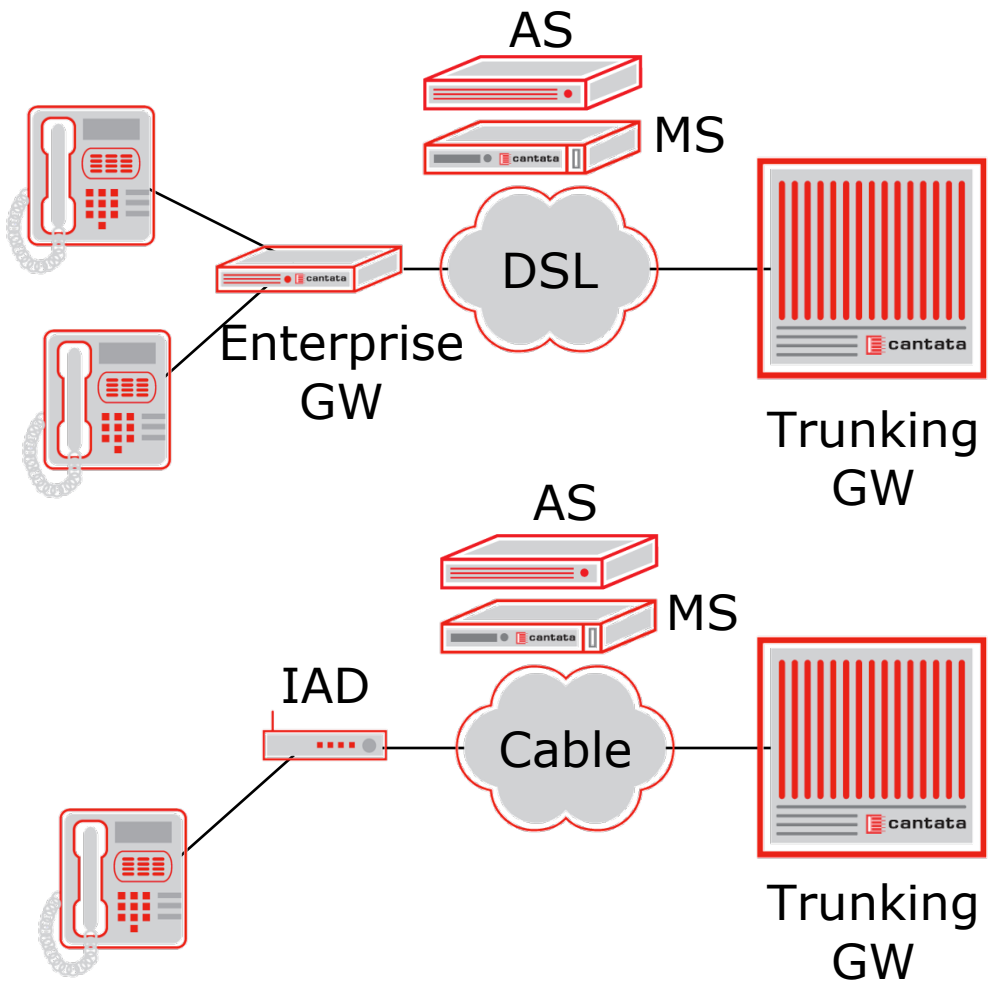
- ISC Made Predictions (2001)
  - Converged Networks
  - Importance of Services
- ISC Served Reality
  - Only Wireline Really Ready
    - Handful of Broadband Packet Networks
    - No Real Wireless Packet Networks
  - Essentially Class 4 Replacement and Internet Offload (Modems)

Accomplishment of ISC

- Educate Market As To What a SoftSwitch (Architecture) Is
  - The Word "SoftSwitch" Only Appeared on the Title of the *SoftSwitch Architecture* Document
- Define Key Components
  - Media Gateway Controller, Media Gateway, Application Server, Media Server, Routing Authority, Signaling Gateway
- Neither Specified How Components Instantiated Nor How Interworked

Third: Local Services

- Enterprise: Hosted Voice Services (IP Centrex)
  - Wireline Delivery
  - Some Broadband
- Service Provider: "VoIP"
  - Broadband Delivery

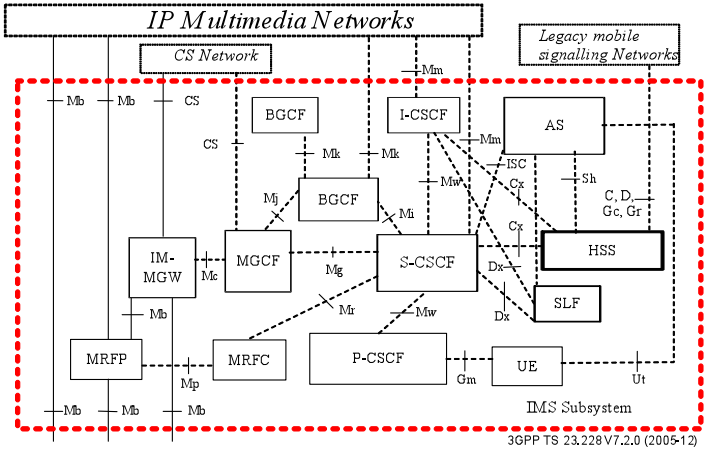


Where Was the Industry?

- Rise of Broadband Access
  - International SoftSwitch Consortium (ISC) Focused on Wireline
  - CableLabs (in U.S.) Focused on Cable
  - 3GPP Focused on Wireless
- International Packet Communications Consortium Formed (IPCC)
  - Successor Organization to ISC
  - Multiple Access Modalities Important
    - Access-Independent Voice for Industry
    - Coordinate Standards and Interoperability Efforts
  - Start to See Mixed-Access Providers

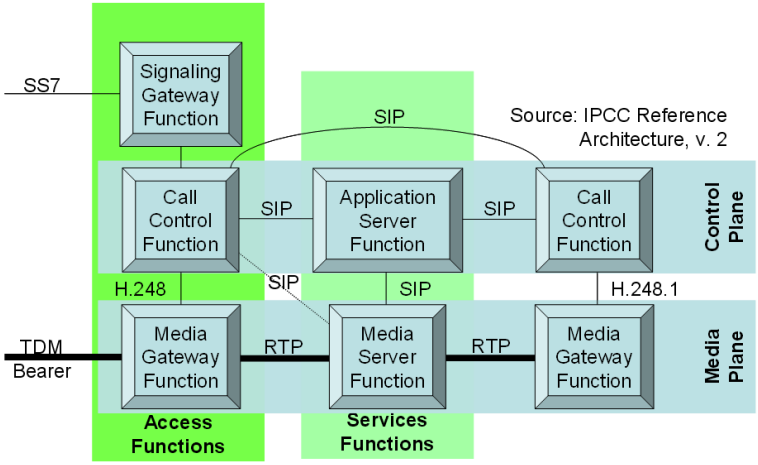
Fourth: Rise of the IMS

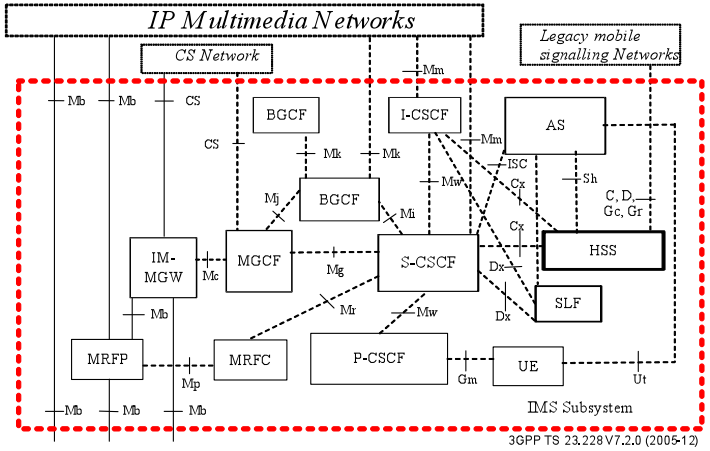
- IP Multimedia Subsystem (IMS) Work Began in Late 1990's
- Pure Wireless Focus
- Fully-Specified Architecture, but Technology Not Ready



IMS Compared to SoftSwitch Architecture

- IMS Breaks Down Functional Blocks into Components
- IMS Gives Outline for Protocols Between Components
- Goals
  - ISC: Identifying Functions
  - IMS: Interoperable Components
- IMS Architecture Instantiation of ISC SoftSwitch Architecture





IMS is More than Wireless

- IMS is Instantiation of SoftSwitch ***Architecture***
  - ISC Architecture Main Goal: Access Independent
  - Will Not Take Much Work to Make IMS Architecture Applicable to Non-Wireless Access Modes
    - CableLabs Working On IMS/PacketCable Harmonization
    - ETSI TISPAN Working On IMS/Telco Harmonization
- IMS Gained Interest as ***The*** Architecture in 2005
  - Applicable for All Networks
  - Easier for Vendors to Address More Markets
  - Operators and Service Providers Leverage Experiences from Other Modalities
  - More Vendors for Operators and Service Providers to Chose From

Where Is the Industry

- Move Beyond Architectures to Implementations
  - Pressing Need for Interoperability
  - Pressing Need for Interoperability Proof
- Need to Coordinate Standards / Industry Organizations
  - 3GPP Focused on Wireless
  - CableLabs Focused on Broadband
  - TISPAN Focused on Wireline
- IMS Forum
  - Successor Organization to IPCC, ISC

IMS Forum Benefits to Industry

- The IMS Forum delivers cost-effective IMS interoperability and interconnectivity to service providers and vendors.
- The Forum will focus on validation and certification for IMS core and interfaces.
- Activities include, but are not limited to:
  - Organizing plugfest events for IMS adopters' validation
  - Developing a certification program for IMS interfaces including pre-certification in qualified labs
  - Promoting best practices for technology, business, and product requirements specifications
  - Developing implementation models and reference architectures
  - Providing consultancy and advisory activities for service providers and vendors

IMS Forum Member Benefits

- Verify and certify interoperability, reduce interoperability costs, and accelerate time to market
- Participate in technical working groups focusing on service creation and applications for IMS architecture framework as well as IMS deployment issues
- Gain additional visibility through the IMS Forum's Speakers Bureau, public relations and marketing programs
- Showcase member companies at major telecom, cable and wireless events in North America, Asia, and Europe
- Receive current market and technology information through newsletters, reports and conferences
- Gain access to a professional network of consultants and experts

IMS Forum Work Groups

- Technical Work Group
  - Interconnecting IMS Networks
  - Feature Transparency Across Broadband, Fixed, and Mobile Networks (e.g., Cable, xDSL, 2G/3G, WiFi, WiMAX, WiBro)
- Service Providers / Integrators Council
  - Senior Carrier Executives to Drive Priorities
- Government and Regulatory Group
  - Education for Government Entities
  - Vendor- and Industry Sector-Independent
- Global Marketing and Education Group

Recent Accomplishments

- Interconnection Considerations for VoIP Networks: Peer-to-Peer Scenarios
- Wireless-Wireline Convergence / Mobile to VoIP Handoff: Initial Technical Considerations
- VoIP Emergency Calling Position Paper (presented to United States Federal Communications Commission)
- IMS Technology Framework: Introduction
- IMS Technology Framework: Coordinating Multiple Applications (SCIM)

(all available at http://www.IMSForum.org)

IMS Forum Leadership

IMS Forum Membership

- Alcatel
- Aramco Services Company
- BayPackets, Inc.
- Cantata Technology
- Cedar Point Communications
- Cisco Systems
- Convedia Corporation
- CopperCom
- Cordia Corp
- Empirix
- Kancharla
- Lignup Corporation
- Martin Group
- MetaSwitch
- Net2Phone
- NewHeights Software
- Newport Networks
- NewStep Networks Inc.
- PBX.net Corporation
- Sonus Networks
- Sprint Nextel Communications
- Sylantro Systems
- Tekelec
- TelKom RisTI
- TMC
- Trendium
- TSA/eLEC
- Ubiquity Software
- UTStarcom
- Valid8.com
- VoIP Inc.
- XConnect Global Networks Ltd

How The Industry Structure has Changed

- Technology and Standards Have Created Disaggregated Market
- Co-opetition: Consider Intel & Cantata
  - Cantata (#1 Media Server Vendor, World-Wide) is Largest Intel Partner for Media Servers
- Competitors: Consider Lucent and Motorola
  - Lucent and Motorola are Competitors
  - Both Use "Best-In-Breed" Components from Cantata
- New Entrants: Consider IBM
  - Thought of As Data Integrator At Best in Past
  - Now Credible IMS Vendor, Integrating Cantata Components

IMS Forum Enables New Vendor Partnerships; Service Provider Information, Education, and Vendors; and Supports the New Industry Structure.

Thank You

Dr. Eric Wm Burger