

# Transition to IMS/MMD: A Mobile VoIP Platform



*2005 3G CDMA Industry  
Achievement Award For  
Network Technology Innovation*

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- BridgePort Networks
- The IMS Model:
  - Technology Convergence
  - Market Evolution
- The Two FMC Hemispheres: Mobility and VoIP
- Transition Options and Phasing to Full IMS
- A Mobile VoIP IOT Platform: MobileIGNITE
- Summary

## Convergence Ahead



- **BridgePort Networks™** delivers service provider centric solutions for network convergence
  - circuit switched mobile ↔ VoIP
- Founded in 2001 based on forecasted:
  - SIP acceptance
  - 802.11/Wi-Fi pervasiveness
- Venture funded – raised \$38M to date
  - Polaris Venture Partners
  - General Catalyst Partners
  - BCE Capital Ventures
  - TD Capital Ventures
- **Merging Mobile Carrier and IP expertise**
- **NomadicONE™** is the world's first software-based Networks Convergence Gateway

# The IMS/MMD Model (1/2)

- Technology Convergence:
  - 2G/3G Wireless transitioning to IMS/MMD  
→ 3GPP / 3GPP2
  - Fixed BB Networks extending into mobility (FMC<sub>1</sub>)  
→ ATIS (NGN) / ETSI (TISPAN)
  - Cable/MSO adding mobility (FMC<sub>2</sub>)  
→ CableLabs 2.0
  - MVNO / ISP "hybrids" adding mobility and VoIP to content  
→ IETF / Internet market
- IMS is *not* FMC, but a reference for components of FMC functionality **for each industry sector**
- IMS is *not* access independent but rather **access accommodating**: multi-mode devices, end-to-end support over multiple access technologies
- **Analogy:** IMS (2005-10) ~ OSI (1980s/90s)  
→ *what is the FMC equivalent of TCP/IP today?*

# The IMS/MMD Model (2/2)

- Market Evolution:

- driven by novel business partnerships to pair VoIP and Mobility offers (e.g. Skype + mobile, "All-in-One", Inter-WLAN offers, ISP+)
- based on existing open industry standards: focus on network interoperability (IMS overlays, backward compatibility, cross-tech)
- market availability of existing technology combinations to extend traditional mobile service coverage and penetration:

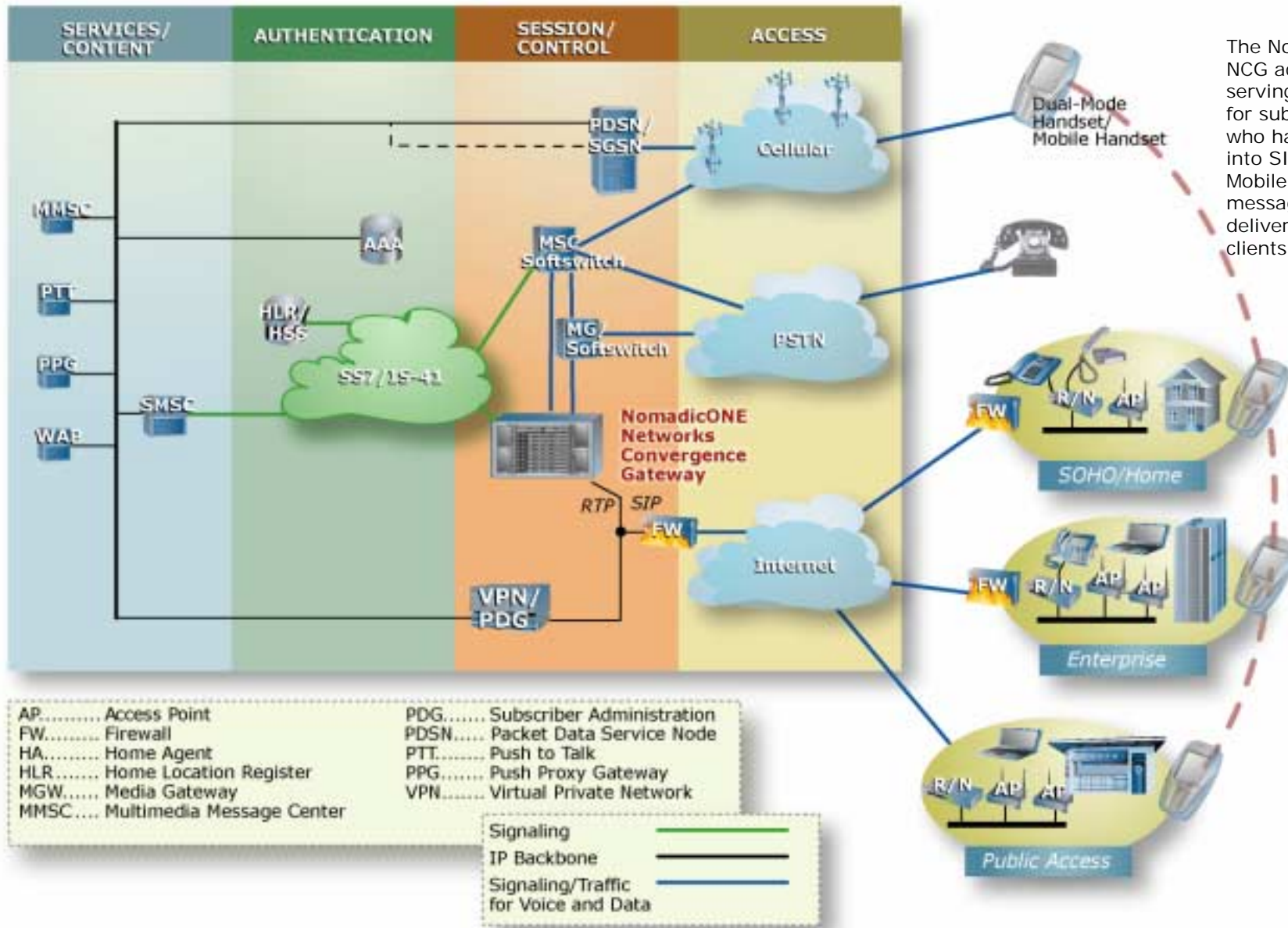
e.g. WiFi "roaming" default between CDMA and GSM operators with dual/multi-mode mode devices

- extends limited voice-only CDMA/GSM roaming to broader CDMA/WiFi to GSM/WiFi with WiFi commonality for VoIP
- allows extension of CDMA enhanced services (e.g. Internet) through WiFi into GSM coverage and vice versa

- Technology arrogance will be punished in the FMC marketplace:

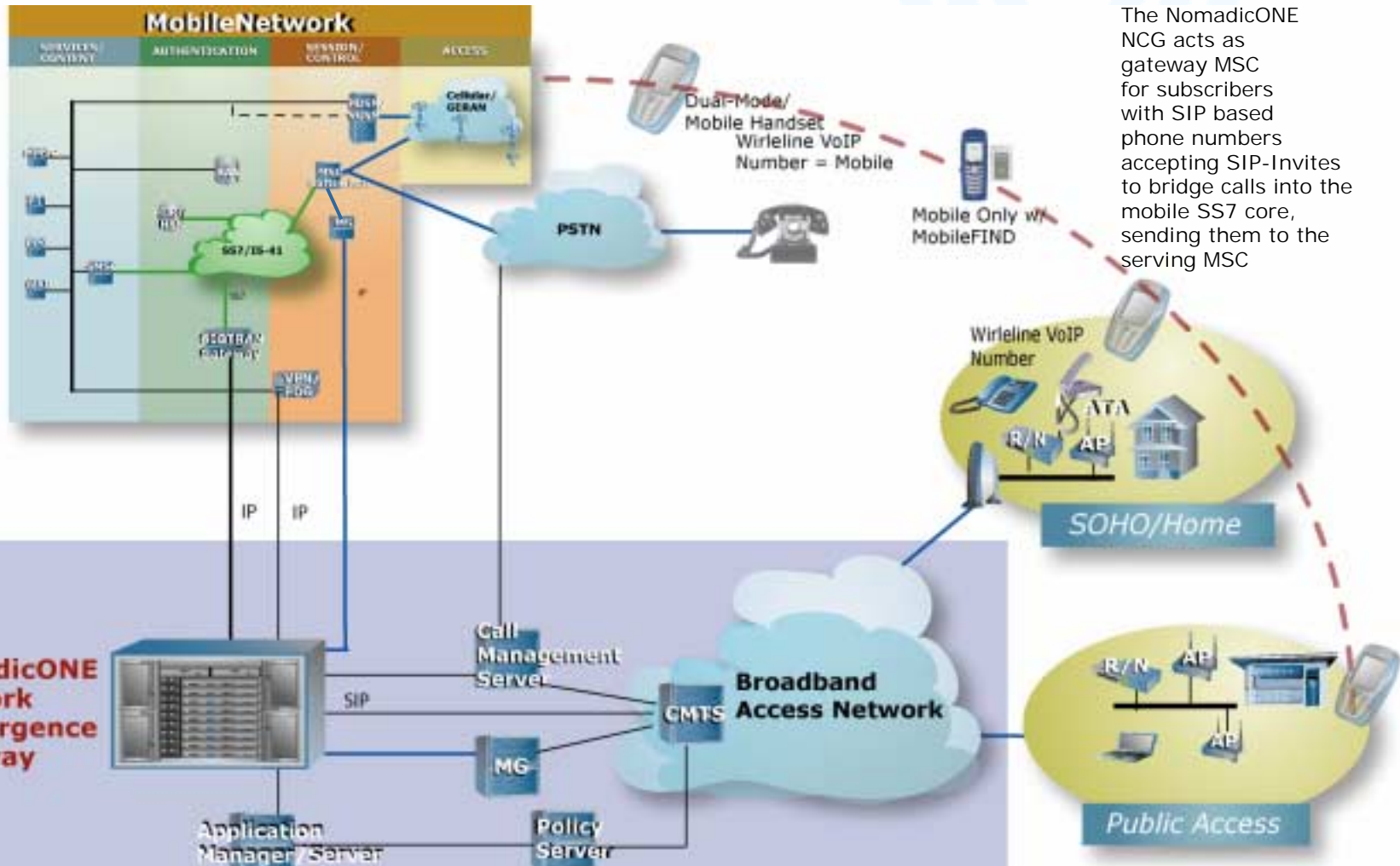
→ *there is no "one-size-fits-all" model*

# Mobile Operator Deployment (Pre-IMS)



The NomadicONE NCG acts as serving MSC/VLR for subscribers who have roamed into SIP space. Mobile calls and messages are delivered to SIP clients

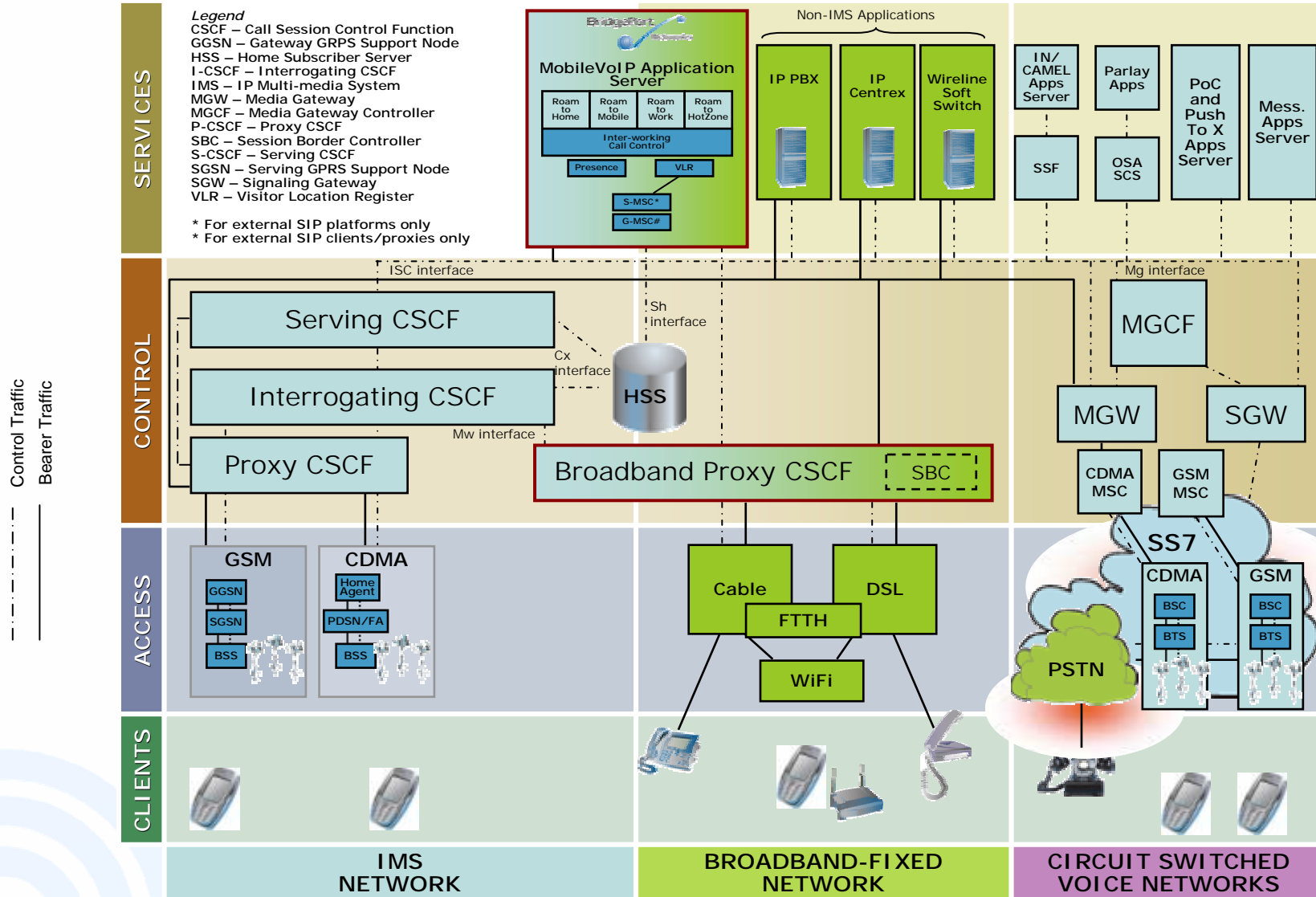
# Broadband Operator Deployment (Pre-IMS)



The NomadicONE NCG acts as gateway MSC for subscribers with SIP based phone numbers accepting SIP-Invites to bridge calls into the mobile SS7 core, sending them to the serving MSC

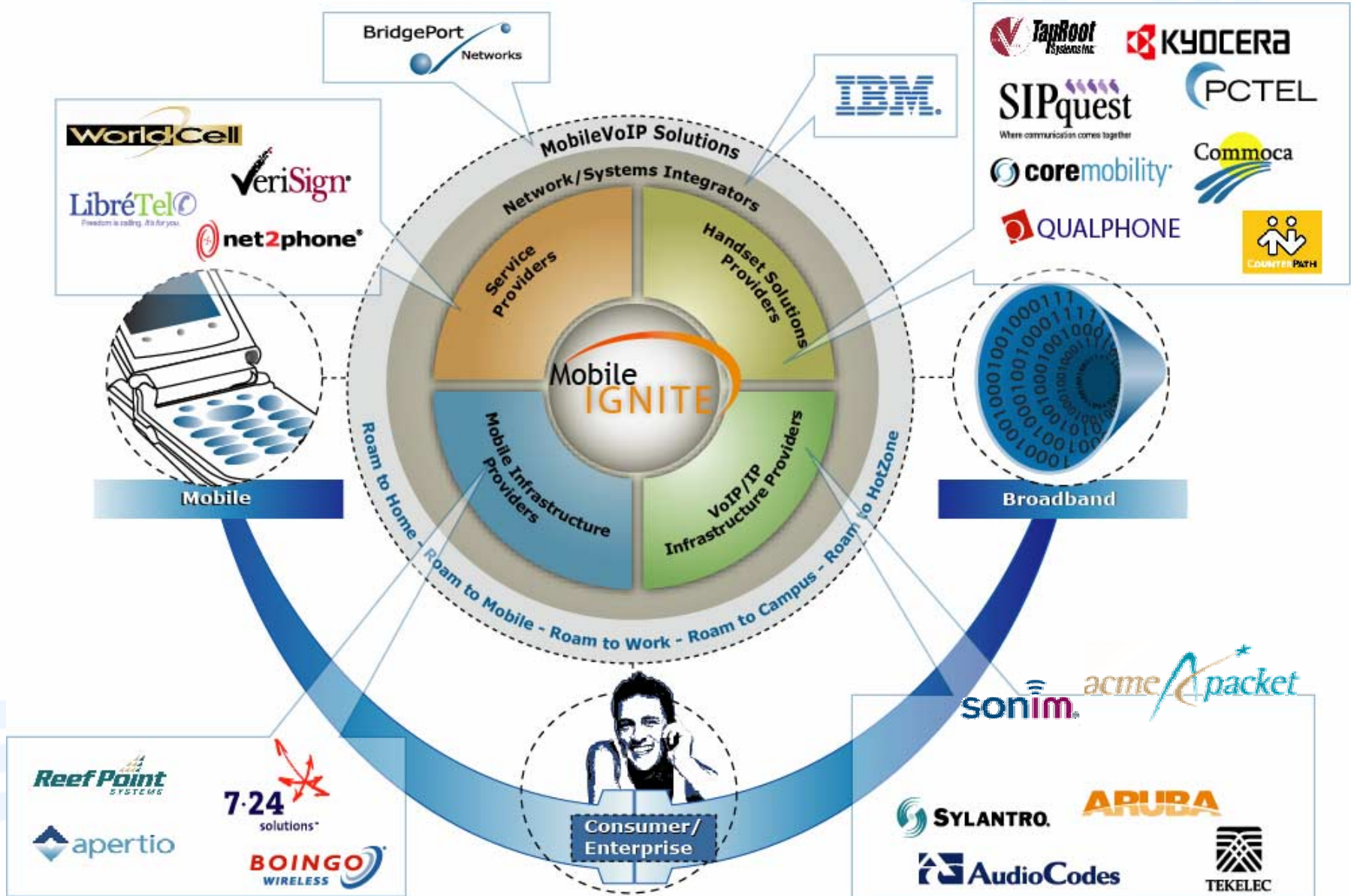
## Broadband Access Network

# MobileVoIP Convergence on IMS



# The Mobile IGNITE MoU

BridgePort Networks  
Where Mobile meets VoIP

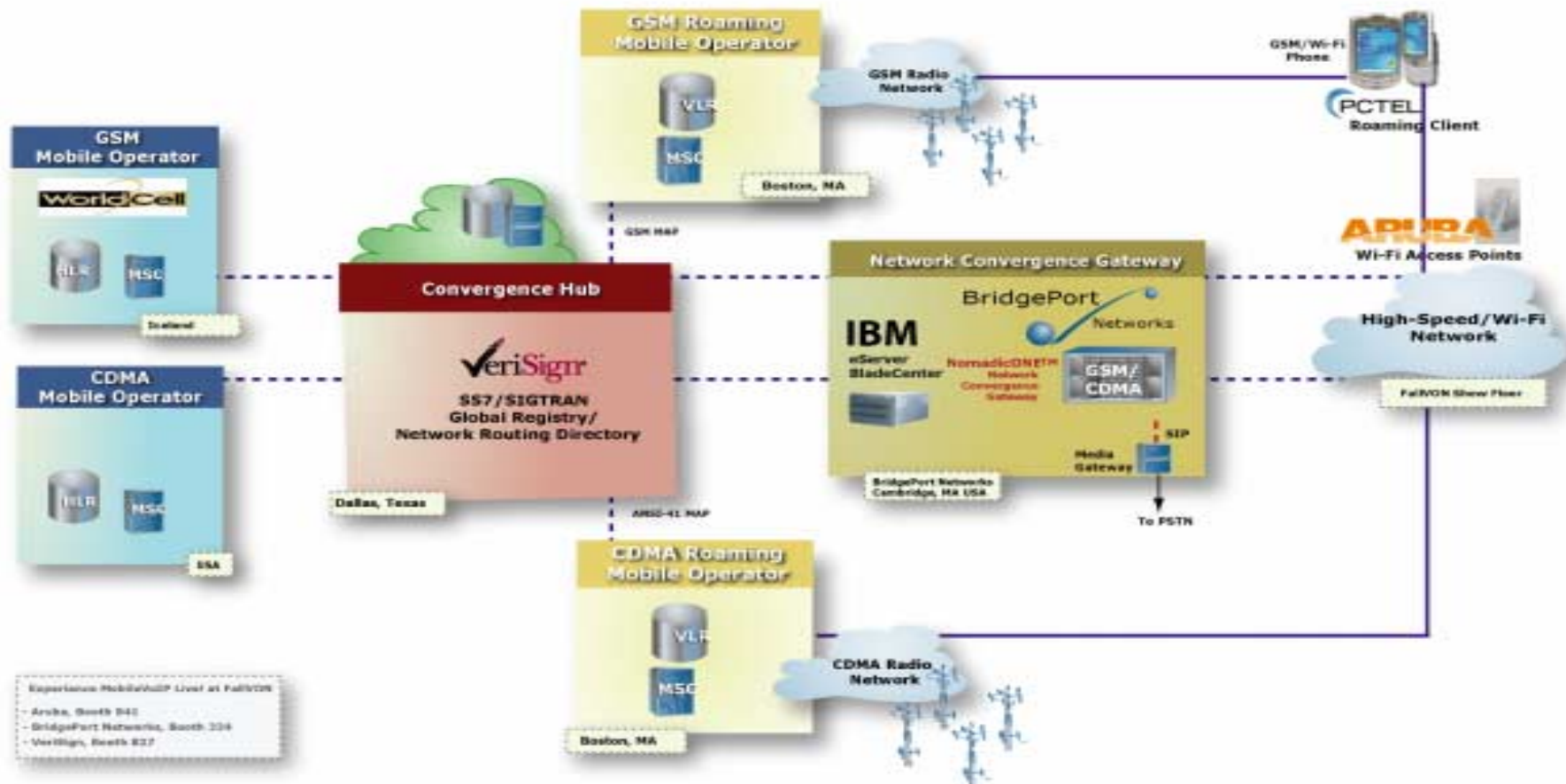


# MobileIGNITE MoU: Value Add for Mobile Operators

- Early service verification of E2E MobileVoIP features supported by a large body of commercial vendors in MobileIGNITE Alliance:
  - *service providers take lead on inputting IOT requirements*
- Minimize interoperability “surprises” and time-to-market for service launch: intra-network (multi-vendor), internetwork (roaming), cross-technology (fixed/mobile)
  - *service provider leverage for more “open” network interfaces*
- Leverages early operator testing and deployment to drive increased volumes/coverage/internetworking/roaming:
  - *existing standards (3GPP/3GPP2) and industry operator groups (CDG, GSMA) do NOT specify minimum network IOT test reqs*
- Supports real-time validation of incremental steps to implement IMS/MMD components while growing current service revenues:
  - *avoids “wait for IMS” scenario: lessons learned from initial ISDN/Internet/2G/SMS/MMS/3G/... implementations*

## Mobile VoIP LIVE! Showcase Architecture

Mobile + VoIP = Growth for the Service Provider Business  
Enable Converged Communications Over Any Device Any Network



# Mobile Operator Use Cases – Content Services

SCENARIO	CUSTOMER	HOME OPERATOR	VISITED OPERATOR	TECHNICAL ISSUES
Location-based services	<ul style="list-style-type: none"> <li>Consumer</li> <li>extend informational or promotional LBS to “interior” world, beyond coverage of cellular networks</li> </ul>	<ul style="list-style-type: none"> <li>Cellular Network</li> <li>enhance value of services by addressing coverage gaps that can frustrate services</li> </ul>	<ul style="list-style-type: none"> <li>WiFi Operator or Home</li> </ul>	<ul style="list-style-type: none"> <li>integration of presence and location technologies across networks</li> </ul>
Streaming Video	<ul style="list-style-type: none"> <li>Consumer</li> <li>download high volume content in cost-optimized fashion using low cost WiFi minutes</li> </ul>	<ul style="list-style-type: none"> <li>Cable TV</li> </ul>	<ul style="list-style-type: none"> <li>Cellular or WiFi Network</li> </ul>	<ul style="list-style-type: none"> <li>detect presence on various networks</li> <li>set preferences to do downloads when logged into low cost network</li> </ul>
Enterprise Application (e.g. CRM)	<ul style="list-style-type: none"> <li>Enterprise</li> </ul>	<ul style="list-style-type: none"> <li>Enterprise</li> </ul>	<ul style="list-style-type: none"> <li>Cellular Network</li> </ul>	<ul style="list-style-type: none"> <li>security</li> <li>handset authentication</li> </ul>
Mobile Games	<ul style="list-style-type: none"> <li>Consumer</li> <li>continuous play while moving across networks</li> </ul>	<ul style="list-style-type: none"> <li>Broadband Provider</li> </ul>	<ul style="list-style-type: none"> <li>Cellular or WiFi Network</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

# Fixed Operator Use Case - Voice Automatic Network Selection (Wi-Fi)

<b>ID:</b>	UC-1002	<b>Title</b>	Automatic Network Selection – Entering Mobile Network
<b>Abstract:</b>	Subscriber has Wi-Fi coverage at home. The subscriber is registered on the Wi-Fi network and leaves the home Wi-Fi zone. The dual-mode phone automatically registers on the mobile (wide area) network.		
<b>Scenario Background</b>	John uses his mobile phone for the majority of his calls. Single ID is important. Single voice mail is key.		
<b>Cast of Characters:</b>	John (user)	<b>Venue:</b>	Home
<b>Scenario:</b>	<ol style="list-style-type: none"> <li>1. John is a Cable BB and Mobile subscriber with Wi-Fi coverage at home. He is at home, and his phone is registered through the Wi-Fi network (phone UI displays 'VoIP').</li> <li>2. John takes his phone and leaves his home.</li> <li>3. While monitoring the Wi-Fi signal, the phone realizes that the Wi-Fi network is becoming unavailable.</li> <li>4. When the Wi-Fi signal reaches a minimum level, the phone de-registers from the Wi-Fi network and registers on the Mobile network.</li> <li>5. John will see a "Registration Successful" message on his phone and the UI will display 'CDMA' or 'GSM' instead of 'VoIP'.</li> <li>6. John can seamlessly make/receive calls without interruptions and manual configuration changes.</li> </ol>		

# MobileIGNITE InterOperability Group

## Current Program Activities



- Document MobileVoIP/FMC Demo IO Test Case Templates:
  - Initial Baseline Demo: 3GSM (February 2005)
  - IP/Centrex mobile/VoIP (multiple vendors)
  - extend Microsoft LCS to mobility (FallVON '05)
  
- Add additional FMC application Demos based on agreed MobileIGNITE Use Cases and IO Requirements
  - shared with MobileIGNITE MoU members
  - track Demo IO validation on MI member Website

# Thank You

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# Mobile|GNITE MoU: Mission Statement

*The Mobile|GNITE MoU accelerates Fixed Mobile Convergence (FMC) by promoting open standards end-to-end interoperable solutions through industry collaboration that improve the quality, coverage and cost of mobile voice and data service delivery and the mobility of IP communication services*

# MobileIGNITE IO Group: Mission Statement

*Provide the technical framework and process to enable the MobileIGNITE to demonstrate interoperability of end-to-end Fixed-Mobile Convergence solutions*



## IGNITE?

- MobileIGNITE is an ecosystem of vendor and service providers that are collaborating on end-to-end solutions for communications convergence
  - Interoperability development and testing of MobileVoIP solutions
  - Co-marketing of joint end-to-end solutions for Mobile, Integrated, Broadband and MVNO service providers.
  - Reducing integration risks, costs and time-to-market for service provider trials and deployments.
- Promotes open standard end-to-end interoperable solutions through industry collaboration for mobile voice and data service delivery and to bring mobile to IP communications services, it improves:
  - quality,
  - coverage
  - cost

## Is MobileIGNITE a consortium?

- MobileIGNITE is a collaboration between members
- There are networking discussion opportunities, such as the Global Convergence Conference.
- MobileIGNITE members establish voluntary marketing and interoperability committees
- benefits and **Is MobileIGNITE a standards group?**

- No, the industry has enough standards. We seek to create new services based on interoperability between vendors and service providers.
- If existing standards have to be extended to allow the required functionality, the extensions will either be openly submitted to existing standards bodies or openly published within a short period of time.



## What do MobileIGNITE members have in common?

- Members support:
  - Solutions that are access network agnostic and flexible for different kinds of service providers.
  - SS7 & SIP & IMS & IEEE 802.11x / IEE 802.16x open standards.
    - Where value is not based on protected protocols but on broad interoperability and flexibility.
  - Deploying interoperable products for today's networks early with a commitment to migrate to IMS compliance and interoperability.
  - IMS/MMD as the core network standard for future Next Generation Networks Convergence.

## What is the role of service providers in MobileIGNITE?

- Service providers are invited to join MobileIGNITE to help with the planning of MobileVoIP convergence solutions.
- MobileIGNITE members will have opportunities to participate with these service providers in the pre-commercial phase:
  - Solution planning
  - Demonstrations, tests and trials of MobileIGNITE solutions