Putting IM into IMS:
Integrated Management challenges for the IP Multimedia System

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May 19, 2005
It’s a Mad, Mad, Mad, Mad, Mad World

- Mergers & Acquisitions
- Wireless/Wireline Convergence
- Wireless Technology Advancements
- Disruptive Technologies
- MVNO & Cable Plays
- OSS Vendor Consolidation
- VoIP

Competition is fierce!
What all the excitement is about

- IP
- Broadband
- Mobility
- Competition
- Voice, still

Users Want to be Connected, Always
The Transformed Customer’s View
When I’m online, I want text to my mobile to come up in Messenger … and I want to click to reply. That’d be cool.
I just want one phone – my mobile ...

but, I don’t want to pay mobile rates when I use it in the office… … or at home.

Can’t be hard.
I wanna choose!!!

... and I want my own phone
I want to be able to transfer calls from my desk to my mobile.

So I can keep talking on the way to a meeting.

Or on the way home.
I want to use the **same mobile** for business and personal calls.

But keep the bills **separate**.
I want to select a music clip from my TV, and listen to it on my mobile ...

...or on my music system
Great goal!
I want to send the goal to my friends
Why can’t I use WiFi when I **travel** and have it charged to my **home account**?
When we’re watching a movie, we want to **see who is calling** when the phone rings. 

**and** to see their picture 

**on the television.**
Something’s not right.

I’ve got one mouth and **three** phones.

Something’s not right.
Anchoring Truths...

Ultimately, everything that can be ... will be ...

Wireless

IP

Personalized

Any service from any network delivered to any device
The Challenges for all Operators

- Create ubiquitous services in a converged landscape
  - Satisfy customer demand for anytime, anywhere, every time, everywhere

- Avoid service substitution; fight margin erosion
  - Falling ARPU, customer churn, increased competition

- Keep the value in the network
  - Disruptive business models emerging; avoid disintermediation

- Reign in network complexity
  - Multiple networking technologies; myriad of different elements
The Transformed Operator’s View
Where are my **devices** for fixed mobile convergence?
Why can’t marketing just make up their mind?
These platforms are great for the future, but I can’t drop today’s services
How much revenue will these new services create?
Will the quality of my Service delivery ... 

... Satisfy this customer?
Mobile minutes consumed by caller location

- 74% of mobile minutes are indoor calls
- 40% of all mobile calls made within a few feet of the users’ landline

Source: OfCom, McKinsey 2004, RelevantC

Note: Representative of average wireless subscriber in the UK, 2003
IP Enabled Mobile Services

Projected 2009 Global Data Revenues ($189 Billion)

- Communication: 47%
- SMS: 57%
- Video Messaging: 9%
- Photo Messaging: 15%
- Rich Messaging: 4%
- Instant Messaging: 4%
- Email: 11%
- Personalization: 8%
- Entertainment: 28%
- Information: 13%
- Corp Connect: 4%

Source: Strategy Analytics, August 2004
Emerging Services Environment

Industry Standards
(e.g. Parlay, OSA, JAIN, HTTP, XML)

APIs & Protocols

Network-based Value Adds

Transport & Switching

Common Service Enabling Platform Examples
... so,

where is the solution?
The shift to IMS networks

From closed, vertically integrated network silos to horizontal layers with open standard interfaces and clear separation of network and services functions creating new sources of opportunities
IMS Impacts

- **NEW Convergent Content** → Seamless Services
- **NEW Market Segments** → New Services
- **NEW Service Providers** → New Competitors
- **NEW Equipment Suppliers** → Multi-vendor implementations
- **NEW Technologies** → Complex implementations

Management challenges:
- Carrier-grade
- Data mgmt
- IT
- Cross-domain services
- 3rd party services

- Service proliferation
- Auto-discovery
- Self-provisioning
- Roaming
- Closed-loop ops
- Device mgmt
- Device security
- Flow thru
- Security
- IP QoS
- Service creation
- Open interfaces
- Real-time charging
- User mgmt

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An example: IMS Management Challenge of Devices

- Heterogeneity of
  - domain
  - capability
  - manageability

- Requirements
  - for auto-discovery of device and software load
  - correlation to known problems
  - patch push capability
  - security – virus protection, grey market

- Device management standards
- Consistency of the user interface
IMS Operational Impacts

*Operations must be transformed, especially for non-mobile operators*

- Business processes fundamentally change
- Network elements are distributed; networks are converged
- Determinate QoS replaced with sliding congestion and latency issues
- Network security, especially for control (signaling) links, becomes significantly more challenging
- Assurance & provisioning now must cross domains
  - Technology
  - Ownership
  - Industry
- Multi-vendor interoperability (with vengeance)
Operational Impacts: Assurance

- Services cross domains
  - access technologies
  - core technology (e.g.: SS7 to SIP)
  - companies and ownership (e.g.: broadband - mobile)

- Distributed network architectures

- Non-deterministic QoS

- Service proliferation / shared networks

- Service Management, not network management
  - Look to TMF work

- Flexible modeling of services

- Stochastic methods to measure performance

- Mix and match access
Operational Impacts: Flexible and Real-time Charging

- Proliferation of data sources
- Protocol proliferation
- Complex plans
- 3rd party settlements
- Content
- Real-time session control
- Complex rating
Operators must transform to a services orientation

- Create, deliver, manage and charge for services, not communications
- Break down organizational and functional “silos”
- Consolidate “mini-solutions” that manage a single initiative
- Implement flexible service delivery platforms
- Use evolving infrastructure for new services
- Modernize legacy OSS
What do we do to help?

- Help make networks
  - Manageable
  - Evolvable
  - Profitable

- Help operators manage the accelerated pace of
  - Change
  - Competition
  - Customer demand
  - Operation
IMS Integration Challenges

- Maximize flow through
- Build services fast and once for all networks
- Execute with carrier-grade quality
- Facilitate real-time charging
- Ensure high end-to-end service quality
- Manage user data
- Secure systems; authenticate & authorize users
- Collect for what you deliver

**Applications/Service Delivery**
- Service Creation
- Service Delivery
- Service Execution
- Security and Control Services

**IP Multimedia Subsystem (IMS)**
- Subscriber Directory
- Session Control
- Interworking
- Media Resource

**Core Network**
- Circuit Switched (CS)
- Packet Switched (PS)
- Intelligent Networking (IN)
- PSTN

**Charging**
- Content Charging
- Application Charging
- Session Charging
- Bearer Charging

**BSS/OSS**
- CRM
- Billing
- Service Provisioning
- Service Assurance

Ensure high end-to-end service quality

Build services fast and once for all networks

Execute with carrier-grade quality

Facilitate real-time charging

Maximize flow through

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Who will rise to the top in today’s telecom market?

- Those who
  - transform to meet customer’s changing needs
  - continually innovate to stay ahead of the technology curve
  - embrace open, flexible, configurable solutions
  - minimize complexity and cost in their networks
  - focus on creating value for customers, stakeholders and shareholders
In Conclusion

- Telecom moving to value added, multi-service IP networks
- IMS is becoming the architecture of choice across wireless, cable and fixed broadband operators – at least in mind share
- But IMS (SIP) and Circuit-Switched voice (SS7-IN) networks will coexist for years, requiring truly “converged” service logic
- Seamless mobility across legacy, broadband and wireless yields the greatest convenience, coverage, user simplicity as well as the lowest blended cost
- Winning interim solutions will execute a “triple play” of benefits:
  - Fast to market
  - Seamless, intuitive usage
  - Consistent with the longer-term goal of IMS (“build IMS equity”)
The Second Wireless Revolution: It’s all about Services

- Push To Talk
- Micro Payments
- Find-Me, Follow Me
- Converged VPN
- Video
- Enterprise Integration
- Presence-driven Services
- Games
- Custom Ringback Tone
- Commerce
- Multimedia
- Instant Messaging
- Voice
- Internet
- Data
- Location-based Services
- Voice & Data Pre-Paid
- Voice & Data Post-Paid
- Alerting Services (Weather, Traffic)
- Converged Pre and Post-paid
Cable Revolution: The Quadruple Play

Video Entertainment

Voice Multi-Media Two-Way Communications

Data High Speed Downloads

Mobility Personalized Services and Content

Content owners bring clout to the game
What our customers want

- Hot new services with rapid, state of the art service creation
- Increased ARPU delivered by advanced, real-time charging for voice, data & content
- Increased cash flow from more efficient operations and network utilization
- Highest quality service assurance with measurable SLAs
- Open, flexible, configurable solutions that work with new and old infrastructure, and across converging environments

Making IP = Increased Profits!
Voice dominates revenues

Voice continues to dominate revenues for coming years

Wireless Subscriber ARPU - Developed Regions
(NA, Western Europe, Japan)

Voice ARPU

Data ARPU

$0.00

$10.00

$20.00

$30.00

$40.00

$50.00

2003

2004

2005

2006

2007

2008
“VoIP is turning telephony into just another Internet application—and a cheap one at that”

IEEE Spectrum, March 2005

“Each new adaptation provides opportunities for interactions and new niches”

John H. Holland
Hidden Order – How Adaptation Builds Complexity
IMS: Applications

- Parlay (X) App. Server
- OMA enablers
- SIP App. Server
- Legacy
- OSA SCS
- GUP
- Policy Mgr
- CSCF, SBC, Service Broker
- IM SSF
- OCF
- Billing System
- CCF
- SGSN/GGSN/SGW
- CTF
- DSL, Cable FTTP
- Wi-Fi
- Bluetooth
- UWB
- 4G
- 3G
- 2G (SS7)
- Wireline PSTN (SS7)
- GLMS
- Pres.
- HSS
- HLR
- Profile
- Parlay (X) App. Server
- OMA enablers
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