Fixed Mobile Convergence

Business approach

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VSM SP CEE

Enable Your Network
Empower Your Business
Fixed Mobile Convergence
Requires Multiple Layers of Convergence

Application Convergence
- Consumer VoIP
- Enterprise Seamless Mobility
- Mobile Data Access

Service Convergence
- CMX - Service Exchange
- ITP - Mobile IP

Network Convergence
- IP/MPLS Core
- IP RAN
- BRAS - Media Gateways
- ATOM - WLAN AP

Applications
Increased Revenue

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Convergence now: A Telecom “Perfect Storm”

Handsets
Significant Mobile Penetration with Low-Cost Dual Mode Handsets Available

123 Million Broadband Lines Worldwide and Growing

Mobile Fixed Substitution:
>30% of Mobile Use Is Now Within the Home and Office; Anecdotal Evidence of a GSM Operator in EMEA Having 50% of Minutes of Use in the Home Environment

WLAN Momentum Continues in Enterprise, Homes and SP
### Drivers for FMC

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<th>Challenges</th>
<th>FMC Opportunities</th>
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<td><strong>Wireline Operator</strong></td>
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<tr>
<td>- Access line and revenue erosion PSTN voice</td>
<td>- Win back voice minutes from mobile operator</td>
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<tr>
<td>- Grow broadband in a profitable way</td>
<td>- Offer new level of convenience to customers</td>
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<tr>
<td>- High OPEX due to parallel networks</td>
<td>- Grow ARPU</td>
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<tr>
<td>- Customers demand mobility and service convenience</td>
<td>- Drive broadband adoption</td>
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<tr>
<td>- Pressure on enterprise business</td>
<td>- Reduce OPEX</td>
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<td><strong>Mobile Operator</strong></td>
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<tr>
<td>- Subscriber growth slowing down</td>
<td>- Strengthen enterprise business</td>
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<tr>
<td>- Little traction in enterprise market</td>
<td>- Reduce churn through sticky service</td>
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<td>- Pressure on termination rates</td>
<td>- Attract new customer through service innovation</td>
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<tr>
<td>- Data service adoption slow</td>
<td>- Improve in building coverage</td>
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<tr>
<td>- Churn</td>
<td>- Applies to US</td>
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<td>- In building coverage</td>
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</table>
# FMC Go-to-Market Scenarios

## Group Approach
Control of Fixed and Mobile Network

- Converged core infrastructure
- Single bill
- Full control of routing and tariffing
- Regulatory challenges

## Partnership
Mobile + Broadband Operator

- Partnership between mobile only and broadband only
- Mobile operator owns customer
- Meet customer demands

## Non-Cooperative
One Network Only

- Wireline VoIP service available through mobile handset (non-cooperative)
- Mobile operator offering broadband VoIP

## MVNO + Fixed

- Owning fixed network
- Reselling mobile operator network capacity
- Single contract, single bill
FMC Go-to-Market Scenarios

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MVNO + Fixed
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MVNO business models

**Content**
- News
- Travel info
- Games
- Smart phone apps.
- Sports

**Mobile portal**
- Mobile operator’s wap site, e.g. wap.sonera.net

**Network**
- GPRS, PDC, CDMA, UMTS

**Supp. infrastr.**
- Provides network access services to many service operators
- Technical infrastructure for billing etc.

**Services**
- Voice, data and VAS services
- Own technical infrastructure to certain extent
- M-commerce

**Terminal**
- Operator branded phones
- Non-operator branded phones

**Customers**

**Radio Access Network**
**Switching Network Elements**
**Content & Applications**
**CRM/Billing**
**Branding**
**Sales Channel**

**MNO**
**MVNO**
**MVNE**

**MNO**
**MVNO**
**AFFINITY PARTNER**

**SERVICE PROVIDER**
**ENHANCED SERVICE PROVIDER**
**HYBRID**
**FULL MVNO**
# MVNO segmentation

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<th>MVNO Segment</th>
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<th>Promotion</th>
<th>Service and Payment channels</th>
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<td>▶ Ensures organic growth and competitiveness through full service offering – triple or quadruple play</td>
<td>▶ Postpaid focus</td>
<td>Existing channels</td>
<td>▶ Existing promotion channels</td>
<td>▶ Existing service and payment channels</td>
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<td>Telenet (B)</td>
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<td>▶ Proprietary as add-on</td>
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<td></td>
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<td>▶ Convergence with existing offer</td>
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<tr>
<td>Internet Low-cost</td>
<td>Simyo (D, B, NL)</td>
<td>▶ Channel strategy</td>
<td>▶ Low-cost</td>
<td>Internet</td>
<td>Internet</td>
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<td>▶ Prepaid</td>
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<td>Content and Media aggregators</td>
<td>NRJ Mobile (F)</td>
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<td>▶ Low-cost prepaid and &quot;compte bloqué&quot; prepaid VAS, content</td>
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<td>Existing retailer POS</td>
<td>BTL, Brand</td>
<td>Self-care (web, IVR) Reloads available in POS</td>
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<tr>
<td></td>
<td>1 Mobile (B)</td>
<td>▶ Increase customer loyalty</td>
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<td>Existing channels</td>
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<tr>
<td>Utilities</td>
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<td>▶ Create additional revenue source from existing customers</td>
<td>▶ Low-cost</td>
<td>Internet</td>
<td>Internet</td>
<td>Existing service and payment channels</td>
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<tr>
<td></td>
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<td>▶ Postpaid (on energy bill)</td>
<td></td>
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<tr>
<td>Financial Services</td>
<td>Privatbank (Ukraine)</td>
<td>▶ Additional revenues, leveraging the existing distribution network</td>
<td>▶ Low cost</td>
<td>Existing POS</td>
<td>Existing channels</td>
<td>Existing POS and ATM machines Internet, E-vouchers Mobile Banking</td>
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<tr>
<td></td>
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<td></td>
<td>▶ Postpaid, prepaid and business customer contracts</td>
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<td>Ethnic Segments</td>
<td>Movida Mobile (US)</td>
<td>▶ Explore market niche</td>
<td>▶ Propaid</td>
<td>Specialized ethnic channels</td>
<td>In POS</td>
<td>Self-care (web, IVR) Reloads available in POS</td>
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<td></td>
<td>Caltro Mobile (B)</td>
<td>▶ Extend existing business (e.g. calling cards, call shops) to mobile</td>
<td>▶ Cheap international calls</td>
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<td>Special ethnic press</td>
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<td></td>
<td></td>
<td></td>
<td>▶ Specific VAS</td>
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<tr>
<td>Community</td>
<td>RCSC Mobile (B)</td>
<td>▶ Increase loyalty of community members</td>
<td>▶ Community-specific VAS and prices</td>
<td>Community Point of Presence Internet</td>
<td>Community Point of Presence Internet</td>
<td>Internet</td>
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<td></td>
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<td>▶ Community Point of Presence</td>
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<td></td>
<td></td>
<td></td>
<td>▶ Internet</td>
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FMC – legal issues

- Wholesale Line Rental
- Bitstream Access
- Local Loop Unboundling
- Broadband Wireless Access
- MVNO/MVNE
- Number Portability
What is „mobile” in FMC - BWA vs classical MNO

Disruptive technologies
High Speed Packet Access/
Long Term Evolution
Wimax/IEEE802.20
WLAN -802.11(x)/MESH
Digital Video (DVB-H/MBMS)

WIFI
- LAN
- Low cost
- Limited coverage
- Low security
- Lacks media access control (MAC)

WiMAX
- Data Broadband access
- Long reach
- Robust
- High power
- Nomadic

UMTS & HSDPA
- Voice access + enhanced data
- Full mobility
- Low power

Note: Comparative ranking with other technologies in performance per cell. Global cost per end user including spectrum fee.
Architecture Options for Service Convergence Combined with Seamless Mobility

- **Layer 7 Convergence**
  - IPT/SIP/IMS

- **Layer 3 Convergence**
  - MIP

- **Layer 2 Convergence**
  - UMA

- **Service convergence**
  - IPT/SIP/IMS

- **Seamless mobility: fixed<>mobile**
  - UMA: voice and data now
  - Mobile IP: data now, voice future
  - IPT SIP/IMS: data future, voice future

- **IPT/SIP is the common element** in fixed and mobile NGN architectures for both service convergence and seamless mobility.

- The market implementation of seamless mobility will be fragmented for many years, however, the end goal is an end-to-end SIP NGN.

- Since mobile SP radio access networks will not support VoIP for many years Cisco will play in all three options.
# Options for Service Convergence and Seamless Mobility

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<th>Layer 7 Convergence</th>
<th>Common Applications That Run over Any IP Network and Service-Based Mobility Like Single Number Reach</th>
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<th>Maintains IP Sessions Seamlessly Between Multiple IP Access Networks</th>
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<td>Mobile IP</td>
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<th>Maintains GSM Voice, SMS and GPRS IP Data Between GSM/UMTS and Multiple IP Access Networks</th>
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<td>UMA</td>
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Options for Service Convergence and Seamless Mobility

Layer 7 Convergence
IPT/SIP/IMS

Common Applications That Run over Any IP Network and Service-Based Mobility Like Single Number Reach

Layer 3 Convergence
Mobile IP

Maintains IP Sessions Seamlessly Between Multiple IP Access Networks

Layer 2 Convergence
UMA

Maintains GSM Voice, SMS and GPRS IP Data Between GSM/UMTS and Multiple IP Access Networks
Application Convergence
Dual Mode Overview

- Base Transceiver Stations (BTS)
- Base Station Controller (BSC)
- Private Network
- Unlicensed Wireless Network (e.g., WiFi, Bluetooth, etc.)
- IP Access Network
- UMA Network Controller (UNC)
- Core Mobile Network
- + SIP
- Base Station Controller (BSC)
- Core Mobile Network
Overall Roaming Scenario

IP Networks

~1Mbps
Home or Remote Office Network

Up to 380kbit/s
Hot Spots

11Mbps
WLAN

100Mbps
Enterprise

DSL/Cable
GPRS/UMTS
WLAN
Ethernet & WLAN
Options for Service Convergence and Seamless Mobility

**Layer 7 Convergence**

**IPT/SIP/IMS**

Common Applications That Run over Any IP Network and Service-Based Mobility Like Single Number Reach

**Layer 3 Convergence**

**Mobile IP**

Maintains IP Sessions Seamlessly Between Multiple IP Access Networks

**Layer 2 Convergence**

**UMA**

Maintains GSM Voice, SMS and GPRS IP Data Between GSM/UMTS and Multiple IP Access Networks
Enterprise Seamless Mobility

Enterprise-centric
- Mobility application resides within Enterprise
- High degree of mobility/good feature transparency
- Requires dual-mode handsets

Carrier-centric
- Mobility application handles service-provider signaling
- Application integrated with CCM
- Very high degree of mobility/transparent feature set
- Requires dual-mode handsets
Seamless Internet Convergence
SwissCom Mobile Unlimited

With automatic selection of the connection, the software calls up a list of priorities with all the supported networks (GPRS, UMTS, Public Wireless LAN) and connects you to the best network with the highest priority. The system automatically switches between SwissCom Mobile’s UMTS, GPRS, Public Wireless LAN networks when the quality of the reception changes. This process is called “Seamless handover”.

- Unlimited data manager
- Seamless roaming and handover GPRS, WLAN and UMTS
- Chooses fastest possible connection
Enterprise Centric Mobility Solution

Dual Mode Mobility Solution—Phase I

Nokia and Cisco Components

- Cisco CallManager
- CM Express (ISR)
- CCM user license
- Cisco Mobility Manager/ Mobile Connect
- Cisco WLAN
- VPN3000/Firewall*

* Optional

- Nokia S60 Device
- CCX Compatible
- Nokia SCCP Client
- Nokia Mobile VPN*
- Nokia Intellisync *
  Push Email+PIM
- Nokia Device Manager*
Carrier-Centric Mobility Solution

MTS—FMC Architecture Overview

- Personal number (SNR)
- Find Me/Follow Me
- Voice VPN
- Enterprise integration—multi-device—any PBX

Enterprise A
Ext. 1422
Mobile 654-3003

Enterprise B

Enterprise C
Ext. 1422
Mobile 794-2808

User Belonging to C Dials 1422

App. Server

Cisco
AS5400

Cisco
BTS

PRI

#1422
IMS Gaining Prominence
Beyond Mobility
Concept Used Across Segments

**Mobile**

Since 1999

3GPP ⇒ IMS

**Wireline**

Since 2004

ITU ⇒ ITU SG13 NGN
ETSI ⇒ TISPAN

**Cable**

Since 2005

CableLabs ⇒ PacketCable 2.0

IETF Protocols

Many Efforts, Dynamically Evolving,
but All Focused on SIP
Common “IMS” Elements and Segment Differences

Mobile
- PDP Access specific focus
- GSM Wireless networking in 3GPP, CDMA wireless 3G networking in 3GPP2

Wireline
- Resource and admission control subsystem
- Network attachment subsystem
- Access and interconnect border control

Cable
- Firewall/NAT traversal and QoS over Cable HSD
- Policy enforcement for multimedia services

Vendor IMS Strategies Must Be Flexible to Adapt to Each Segment’s Needs
Strategy for the FMC provides

New value chains and business models

- Content provider
- Content aggregator
- Service provider/i.e.MVNE/
- Pipe provider
- Customers/communities/WEB 2.0
Mobile view on FMC – how the business is transforming

- Circuit switched voice + vas
- Window of existing revenue generators sliding in time
- Access: CSD, HSCSD, GPRS, EDGE, UMTS, HSDPA, HSUPA, LTE
- Applications: VoIP, IMS, DRM PKI, IPTV (incl. VoD), WEB2.0, TELEPRESENCE, VPN, MANAGED SERVICES
Mobile view on FMC – how the business is transforming

Identity and Mobility Management
- User / Device ID
- Subscriber Awareness
- Location / Presence
- Service Registration
- Audit / Logging
- Assured Authentication
- Device Roaming
- Service Mobility
- User Mobility

Connected Home MNO service layer

Service Policy and Resource Management
- Subscriber Policy
- Application / Chaining
- Per-Subscriber Service
- Service Invocation

Session and Media Management
- Call Control
- Session Border Control
- Rich-Media Control
- Diff Bandwidth & QoS per Session
- Accounting / Billing
Summary

- Ongoing market pressure and technology transformation triggers convergence of fixed and mobile infrastructure and services
- Fixed mobile convergence will happen over IP and be fueled by mobility, broadband and wireless LAN rollout
- No single architecture exists to address all aspects of service convergence
- Cisco as leader in SIP technology and VoIP is ideal partner for voice convergence
- Cisco Intelligent Information Network addressing all mobility and convergence capability on the network layer
- Cisco product portfolio complemented by strong ecosystem of partners
Ne zaboravite da se prijavite na Cisco Networkers 2008!
