Agenda

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• Mobile Services provided by TA WS CCMS for the TA Group
• GSMA ENUM Pilot Mobilkom Austria – Telekom Austria
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• Integration Possibilities
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• Technical Integration
• Tier 2 Service - Any Call Enablement
• Tier 1 Service - National & International Call
• Tier 0 Service - International Call Enablement
• Other Scenarios
• Next Steps
Telekom Austria Group

-is a Strong Player in Eastern- & South-Eastern Europe

International Expansion

- 1998: Croatia
- 2001: Slovenia
- 2005: Bulgaria
- 2006: Serbia
- 2007: Macedonia & Belarus

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Highlights

- Established player in the CEE region due to high-quality service and cross-cultural understanding
- „Follow your customer“ – Telekom Austria Wholesale paves the way for worldwide connections
- Future-oriented infrastructure is the basis for success:
  - Country-wide and largest network in Austria
  - Telekom Austria’s JetStream backbone connecting the CEE region
  - Teleport Aflenz
- Wide range of services and solutions:
  - Voice telephony
  - Scaleable data networking
  - Customer-specific corporate networks
  - Global satellite

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Telekom Austria Jet Stream

PoPs

- Vienna PoP Telekom
- Salzburg PoP Telekom
- Linz PoP Telekom
- Vienna PoP InterXion
- Prague PoP Setel
- Brno PoP Selfservis
- Ivancice PoP Selfservis
- Frankfurt PoP anacotel gmbh
- Frankfurt PoP InterXion FRA4
- Munich PoP Global Crossing
- Budapest PoP Pantel
- Budapest PoP Dataplex
- Bratislava PoP Setel
- Milan PoP Mailpaga
- Milan PoP KPNwest Italia
- Maribor PoP Amis
- Ljubljana PoP Voljetel
- London PoP TMI
- Zagreb PoP VIPnet
- Zagreb PoP AMIS
- Bucharest PoP Datek
- Bucharest PoP N-X Data
- Timiscara PoP Orange
- Sofia PoP MobilTel EAD
- Sofia PoP Neterra
- Haskovo PoP MobilTel EAD

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Mobile Services by Telekom Austria

- Signaling for Roaming via SS7 data links or via IP (SigTran)
- Roaming WebView
- ANSI Converting
- IPX Services
  - GRX Transport
  - SMS Hubbing
  - MMS Hubbing

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- GSMA ENUM Directory Project
  *EMC Approved April 2007
  *Pilot April - September 2008

- February 2008 – Participation of Mobilkom Austria and Telekom Austria
- Project centralized and driven by GSMA – IR.67

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- Single Root Carrier ENUM
- Managed Service
- Carrier Grade
- Access through GRX/IPX
- Tier 0 Global Root Service
- Tier 1 Delegation Service
- Tier 2 No. Mapping Service

Provision Data

Query

Result

Number Resolution Service
Data: Tier 0, Tier 1, Tier 2

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**Services in scope for**

- **IMS SIP-based Voice**
  Eyebeam SIP-Client registered to mag-IMS-Core, and inviting a foreign e.164-b-party number, as well as vice-versa.

- **IMS SIP-based Video**
  Eyebeam SIP-Client registered to mag-IMS-Core, and inviting a foreign e.164-b-party number, as well as vice-versa.

- **IMS SIP-based InstantMessage**
  Eyebeam SIP-Client registered to mag-IMS-Core, and sending a “MESSAGE” to foreign e.164-b-party number, as well as vice-versa.
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— **Peer2Peer-Presence (optional)**

Eyebeam SIP-Client registered to mag-IMS-Core, and exchanging Peer2Peer-Presence Info with a foreign e.164-b-party number Eyebeam SIP-client, as well as vice-versa.

— **Clearinghouse functionalities**

<To be defined and clarified>
Applications and Benefits

Applications
- Voice, Text, email, MMS, IM, Videocalling, Videoshare, etc
- Content delivery, mobile payments, location services, etc
- IP Interconnect between operators
- Carrier selection

Customers Benefit
- All services integrated behind phone numbers

Operator benefits
- Phone number asset relevant in an all-IP world
- Enable migration to all-IP NGNs
- Long term simplification of routing technology and management

GSMA Objectives
- Provide an industry ENUM resource
- Trigger adoption and fulfilment of benefits
- Facilitate a trusted ENUM community
- Ensure global scalability and interoperability - IPX
Integration Possibilities

- **TA-GRX-connectivity (minimal deployment)**
  Provide only IP-connectivity to reach other participants of the GSMA ENUM Trial
  Provisioning of mobilkom austria group destinations will be done manually on GSMA-ENUM-DNS

- **TA-GRX-connectivity plus TA-ENUM-DNS**
  Provide IP-connectivity to reach other participants of the GSMA ENUM Trial
  Zone « .3.4.e164enum.net » delegated to TelekomAustria
  Mag IMS-Core will use TA-ENUM-DNS, responsible for b-party resolvement
  Provisioning of mobilkom austria group destination will be done manually on TA-ENUM-DNS

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Integration Possibilities

- **TA-GRX plus TA-ENUM-DNS plus TA-IPX-Proxy**

  Provide IP-connectivity to reach other participants of the GSMA ENUM Trial

  Zone « .3.4.e164enum.net » delegated to TelekomAustria

  Mag IMS-Core will use TA-ENUM-DNS, responsible for b-party resolvement

  Mag IMS-Core will use TA-IPX-Proxy for SIP-routing “only” (ie. No Break-out to CircuitSwitched-Domain) as specified in GSMA

  Provisioning of mobilkom austria group destination will be done manually on TA-ENUM-DNS
Roadmap

- Pilot: 2Q08
  - AMS-IX EUnetworks
  - AMX-IX Telecity
- Commercial deployment: 4Q08
  - Add Ashburn (Virginia, USA)
- Ramp-up: 1Q09
  - Add Singapore
- Additional locations based on demand
NRS Intergration

- Connectivity: Network connection to POP (AMS-IX)
- Routing: BGP routing to ENUM DNS servers
- Services: issue DNS queries, use responses
- Traffic Exchange: To use responses also need network connection/routing to services

1. Query

 ENUM Data

2. Result

Operator A

3. Route IP Service

Operator B

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Technical Integration

- Query Service
  - Physical connection to AMS-IX interworking VLAN
  - BGP Routing to AMS-IX locations
  - ENUM DNS queries
- Provisioning Service
  - VPN connection for XMLI_API
  - HTTPS (login) connection for GUI
Technical Integration

- Publish data for access by others
  — Data owned by operator,
  — Used by queries to reach subscribers

Production: Can use locally hosted instance
  — Provides in-network latency
  — Provides real-time policy/rule changes

Caching
  — Determined by provisioner
  — TTL reflects dynamic nature of DNS data

Security
  — Data only available via private network (same as GRX interworking)
  — Provisioning secured via VPN/SSL
Tier 2 Service - Any Call Enablement

- Use the GSMA Tier 0/1/2 service to provide the ENUM data (NAPTR Results) for your telephone numbers

Benefits: Operator(s) does not have to implement their own Tier 2

Benefits: Data can be reached by all other operators globally with only one query
Tier 1 Service - National & International Call

- Use the GSMA Tier 0/1 service to provide a pointer to your Tier 2 ENUM database

Benefits: Operator(s) do not have to implement a Tier 1

Benefits: Operators who have implemented their own tier 2 can be reached by all other operators globally
Tier 0 Service - International Call Enablement

-Use the GSMA Tier 0 service to provide a pointer to the agreed Tier 1 ENUM database for a country code

Benefit: Operator(s) who have implemented their own Tier 1 can be reached by all other operators globally

Key
- GSMA NRS
- Other NRS

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Other Scenarios

- Use the GSMA Tier 0 and 2 services with an existing Tier 1

Benefit: Operator(s) can work around established Tier 1
Next Steps

- Complete Pilot & produce results
- Develop & initiate communications plan
- Achieve production readiness of the system
- Launch Production Service
- Connection Programme
Thank you.