Viewing IPX from specifications and from real offer

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Agenda

- About the IPX
- IPX Flavors in the market place
  - I3 Forum VoIPX and GSMA IPX convergence & differences
- Case Study on real-world IPX experience
What is the IPX

- A next-generation Premium network for Mobile Services endorsed by the I3 Forum and GSMA

- A multi-service IP interconnect and transport network that ensures security, managed quality of service, and cascading payments

- Linking diverse service providers including fixed and mobile operators, content providers, ISPs, ASPs, etc.
I3 Forum VoIPX and GSMA IPX docs

- I3 forum “Technical Interconnection Model for International Voice Services” current release
- I3 forum “Bilateral Voice Service Description” Version 1.0, May 2008
- I3 forum - Technical - VolPX Rel 1, October 2010
  i3forum - Service value and process of measuring QoS KPIs v1 may2010
- i3 Forum Understanding the different flavors of IPeXchnges (Release 1) May 2011
  GSMA AA.80 — Agreement for IP Packet eXchange (IPX) Services, Version 3.2, July 2009
  GSMA AA.81 — PACKET VOICE INTERCONNECTION SERVICE SCHEDULE to AA.80, Version 1.2, July 2009
- GSMA IR.34 — Inter-PLMN Backbone Guideline, Version 4.9, March 2010
I3Forum / GSMA IPX Co-operation

• Several items resolved for Voice on IPX
  – Charging Transparency
  – Max 2 Hop rule
  – TDM Break-outs
  – Opt-in / Opt-out
  – Routing transparency

• Still unresolved items
  – IP breakout due to GSMA security concerns
Several IPX like offerings today

- I3 Forum VoIPX built upon the GSMA IPX
- Voice TDM with IP Access
- IPX based on data roaming
- IPX based on the Internet
Who Are the Main Entrants?

- **International Wholesale Voice Carriers**
  - Most already own/lease and manage large private MPLS networks
  - Networks developed to transport Conversational (real-time) data from the ground up
  - Familiar with the cascaded voice business models

- **International Mobile Data Providers**
  - Most own/lease MPLS networks
  - Have experience in data services (roaming, SMS, GRX, etc)
  - Usually partner for Voice services

- **Non-traditional entrants**
  - ISPs, CDNs and other providers entering the IPX arena
  - Not familiar with Mobile and voice data services
How do these IPX flavors differ?

• Useful to understand key points either as a buyer, device manufacturer or competitor

• They differ based on following topics:
  – Access
  – QoS
  – Routing
  – Security
  – Multi-services
  – Commercial Models
Access

• Is IPX traffic isolated from the public Internet?
  – No public internet access from GSMA
  – Secure access via VPN on Internet allowed by I3 Forum and others

• Does the IPX provider support SIP?
  – SIP-I is required for Voice feature support by GSMA
  – SIP and SIP-I allowed by I3 Forum and others
Quality of Service

• Is QoS only guaranteed at the transport/IP layer?
  – Good IP path does not always guarantee good voice quality
  – I3 forum publication on other metrics for voice

• How is the QoS Measured?
  – GSMA theoretic approach
  – I3 Forum is ratifying practical way using RTCP
  – I3 RTCP method allows QoS measureable through multiple IPX Provider networks
Voice Routing

• Does the IPX Provider announce which routes are IPX Direct, Indirect and which ones utilize a TDM breakout?

• Are Break-outs allowed?
  – IP break-out is not allowed in GSMA except to another IPX, is allowed in I3 Forum

• Is number portability supported in the IPX Providers network?
  – I3 forum flexible using NP where available and onward routing
  – GSMA using Pathfinder (not yet feasible)
Security

• Does the IPX Provider guarantee traffic to be isolated from the public internet?
  – I3 forum flexible on transport via Internet as the means when other options not possible.

• In case of transport using Public Internet
  – I3 Forum recommends the IPX Provider offer signaling encryption
Service Offerings

• Does the IPX Provider offer full-coverage voice termination?

• Does the IPX Provider offer mobile data services GRX, SMS, signaling, roaming on one interconnect?

• Does the IPX Provider offer transport-only mode with class of service?
Case Study: Real-world IPX experience

- European and Asian operators interconnected via IPX with ultimate migration of production traffic to IPX

Challenges:

1. Limited IPX-Compliant vendor selection reduces traffic volumes and ability to net-cost relationships vs. bi-laterals today
2. Not a short-term limitation based on IPX volumes increasing
3. Some conflicts between AA.80, AA.81, AA.82, AA.83 in regards to responsibility, service credits, fault reporting, and general terms
4. SIP-I troubleshooting - equipment vendors do not seem to have their SIP-I implementation issues worked out
Questions

Thank You!