



3rd Annual i3Forum Conference

The Future is All IP

May 17, 2012
Chicago

Implementing Voice over IP together

presented by

Alessandro Forcina

(i3 Forum WS “Technical Aspects” Chairman)

TELECOM ITALIA SPARKLE

www.i3forum.org

i³ forum 
international ip interconnection



Agenda

- **The Business Framework**
- **The Voice over IP world in 2007/08**
- **i3f WS Tech Deliverables**
- **Interconnect Model**
- **Fax over IP**
- **Voice over IPX**
- **Routing and Addressing**

The Business Framework

Different Business Models for Int. Voice Services

- Bilateral
- Hubbing (Open Wholesale Market)
- **IPX**
- Others (e.g. Communities with on-net / off-net traffic concepts)

with

- Various level of quality (at the IP and service layers)
- Cascade payment
- Volume based billing (with or without commitments)

No major change TDM vs. Voice over IP business model

The Voice over IP world in 2007/08

IP Configuration /
Coding:
Multiple choices

Multiple Voice Codec:
strong issues with FoIP

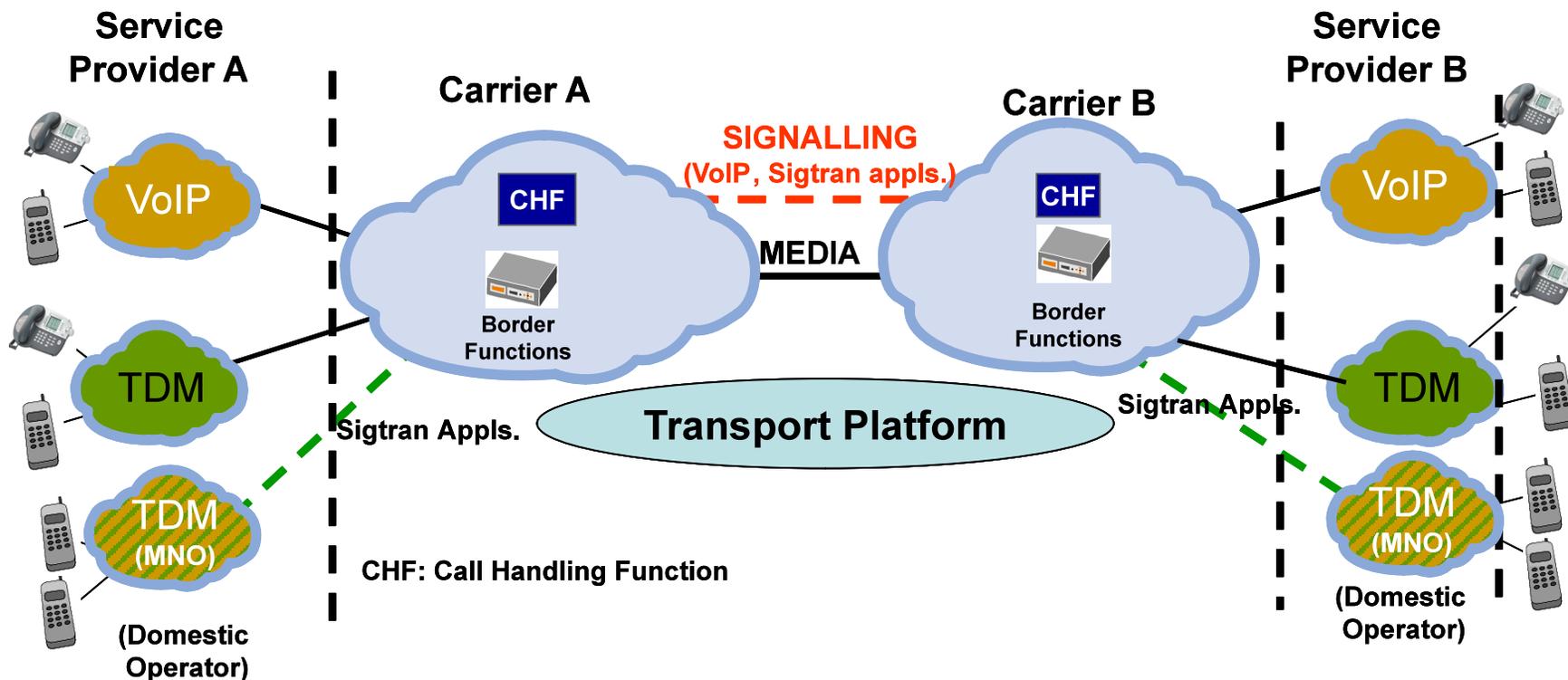
Signalling:
**SIP, SIP-I, H.323,
BICC, H.248**

Testing Procedure:
no best practice

Security:
no best practice

*Too many alternatives, no clear path to be pursued,
no best practice*

General Reference Configuration



Domestic interconnections (TDM/IP; IP/IP) are out of scope

WS “Technical Aspects” Deliverables

- 1) Technical Interconnection Model for Int.nal Voice Services (Rel. 5, 2012)
- 2) WP on Voice Path Engineering in Int.nal IP Networks (Rel. 3, 2011)
- 3) Technical Specification for Fax Over IP service (Rel. 2, 2012)
- 4) WP on Mapping Signalling Protocols ISUP to/from SIP, SIP- I (Rel.3, 2011)
- 5) Interconnection IMS Signalling Profile (Rel. 1, 2012)
- 6) White Paper on Security for IP Interconnections (Rel. 1, 2011)
- 7) Technical Specification for Voice over IPX service (Rel. 3, 2012)
- 8) WP on Techniques for Carriers’ Advanced Routing and Addressing Schemes (Rel. 2, 2011)

Interconnection Model (Rel.5)

- Private vs. Public Interconnections configurations
- IP layer parameters setting
- Signalling Protocols (SIP and SIP-I) and Sigtran support
 - **Mapping Signalling Protocols ISUP to/from SIP, SIP- I (Rel.3) or 3GPP TS 29.163 V.7.22**
 - **Interconnection IMS Signalling Profile (Rel. 1)**
- Narrowband (G.711, and G.729 family) , wideband and low bit rates codecs
 - **Voice Path Engineering in Int.nal IP Networks (Rel. 3)**

Interconnection Model (Rel.5)

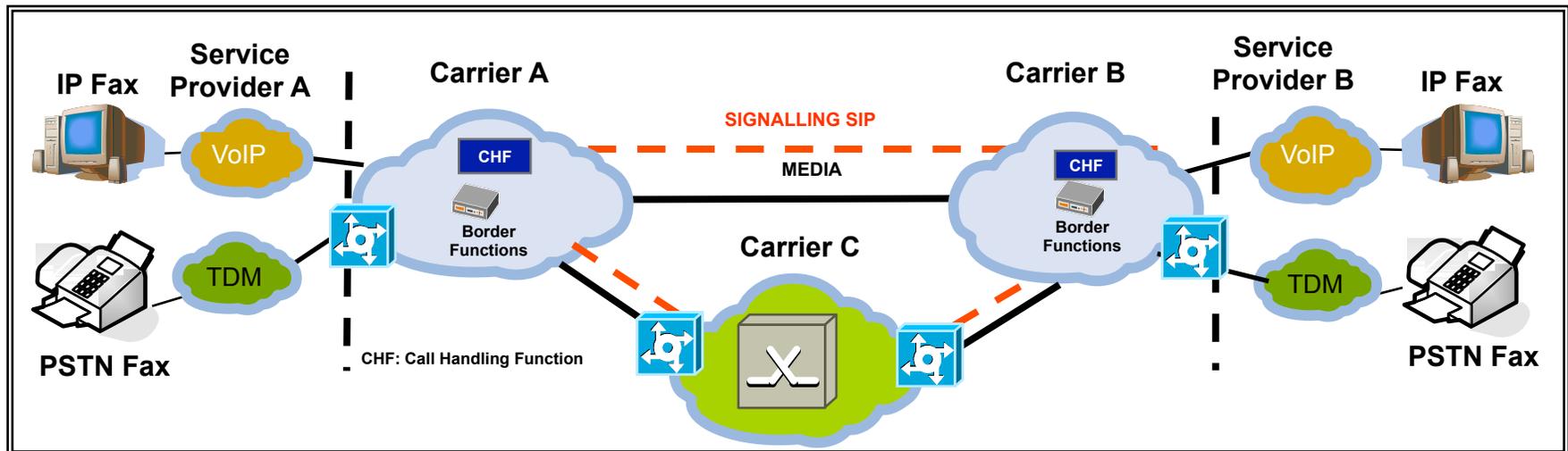
- Fax and modem over IP connections
- Security actions to be implemented (*SBC MUST be operational*)
 - **Security for IP Interconnections (Rel. 1, 2011)**

Security Threats	DoS/DDoS Attack, Protocol Vulnerabilities, Address/Identity Spoofing, Theft of Service, Rogue Media, Session Hijacking, Network Intrusion, Internal Network Security
Security Mechanisms	Topology Hiding, Encryption, Authentication, Access Control Lists, Reverse Path Filters, Traffic policing, Application Level Relaying, Deep Packet Inspection, SRTP, DNSSEC, Media Filtering, Firewalls, Intrusion Detection Systems, Device Hardening, Logging and Auditing, Security Information & Code Updates

- Addressing: E.164 based in tel URI and SIP Uri formats
- Quality of Service guidelines

Fax Over IP Service (Rel.2)

- Activity carried out jointly with Sip Forum FoIP TG
- 2 testing campaigns: 2010 and 2011/12 with nearly 12 carriers ww



- General prerequisites for the network: bandwidth, packet loss, delay
- Media Gateway configuration & dimensioning
- Practical guidelines – testing method
- Problems identified
- Target recommendation with target solution proposals

Voice over IPX

Need to have

- open, multiservice, secure, QoS controlled, cascading payments IP platform

IP eXchange from GSMA

Technical Specification for Voice over IPX services (Rel. 3)

considering the market (carriers' platforms and customers' requirement)

- focus on the Multilateral Hubbing connectivity mode
- provides specifications which, meeting the basic GSMA requirements, can be implemented for IP routing, signalling, media, security, QoS control and service routing
- differentiates from current GSMA specification on specific topics (e.g. break-in / out)
- Provides comprehensive guidelines for QoS Measurement & Control

Routing & Addressing

Need to have

- NP Resolution (F+M) to exploit advanced routing/addressing schemes

Efficient, cost effective systems / service providers

Techniques for Carriers' Advanced Routing and Addressing Schemes (Rel.2)

considering that Multiple solutions already available in the market

- technical requirements for the query (*ENUM/DNS*, Diameter, SIP Redirect, SS7 MAP/TCAP), provisioning and replication interfaces
- basic requirements for Service Provider Identity (SPID) and support for a worldwide standardization,
- Administratively Global SPID identifiers should be assigned by an international assignment body