



Keynote Address
China VoIP Conference and Expo
2005

Barriers to VoIP Deployment and
Initiatives to Overcome Them

Prof. Eric Burger
Member of the Board, IPCC
Member of the Board, SIP Forum
CTO, Brooktrout Technology, Inc.

May 19, 2005

1

Roadmap

- **Who Are the IPCC**
- **Barriers to VoIP Deployment**
 - ❑ **As Reported By Our Members**
- **Initiatives to Overcome Barriers**
 - ❑ **Service Provider Interconnect**
 - ❑ **Session Border Controller**
- **Summary**

International Packet Communications Consortium

- **Industry Membership Association Working to Advance Real-Time Packet Communications**
 - ❑ **SIP, H.323, NCS/MGCP/J.162, MEGACO/H.248**
 - ❑ **Voice, Video, Multimedia**
 - ❑ **Broadband Wireline (Cable, DSL, ...), Packet Wireless (2.5G, 3G, WiMax, ...)**
- **Successor Organization to the International SoftSwitch Consortium, Established 1998.**
- **Highest Proportion of Service Providers of any Next Generation Industry Consortium**



May 19, 2005

IPCC Goals

- **Simplifying services deployment through reference architectures, interconnectivity rules, and management requirements for public and private VoIP and video over IP services**
- **Reducing effort and costs in turning standards into revenue generating services**
- **Driving alliances among industry forums, establishing joint working groups and steering major industry events**
- **Delivering unbiased advice to regulators, implementers, financial and technology business analysts and industry leaders**

Service Provider Needs

- **Service Providers Approached IPCC With List of VoIP Deployment Issues**
 - ❑ **Service Provider Advisory Board Members**
- **Major Barrier to VoIP Deployment is Service Provider Interconnect**
- **IPCC Formed Service Provider Interconnect Work Group**
 - ❑ **Service Providers are Co-Chairs**
 - ❑ **Producing Service Provider Interconnect Document**

Service Provider – Service Provider

- **I don't trust you**
- **I don't trust you, either**



May 19, 2005

6

Service Provider – Enterprise

- **You have different traffic than I do**
- **I don't want you to find out who I terminate your traffic with**

Wholesale – Retail

- **I don't want you to find out who my customers are**
- **I don't trust your customers – I want to protect my network**

Other Issues

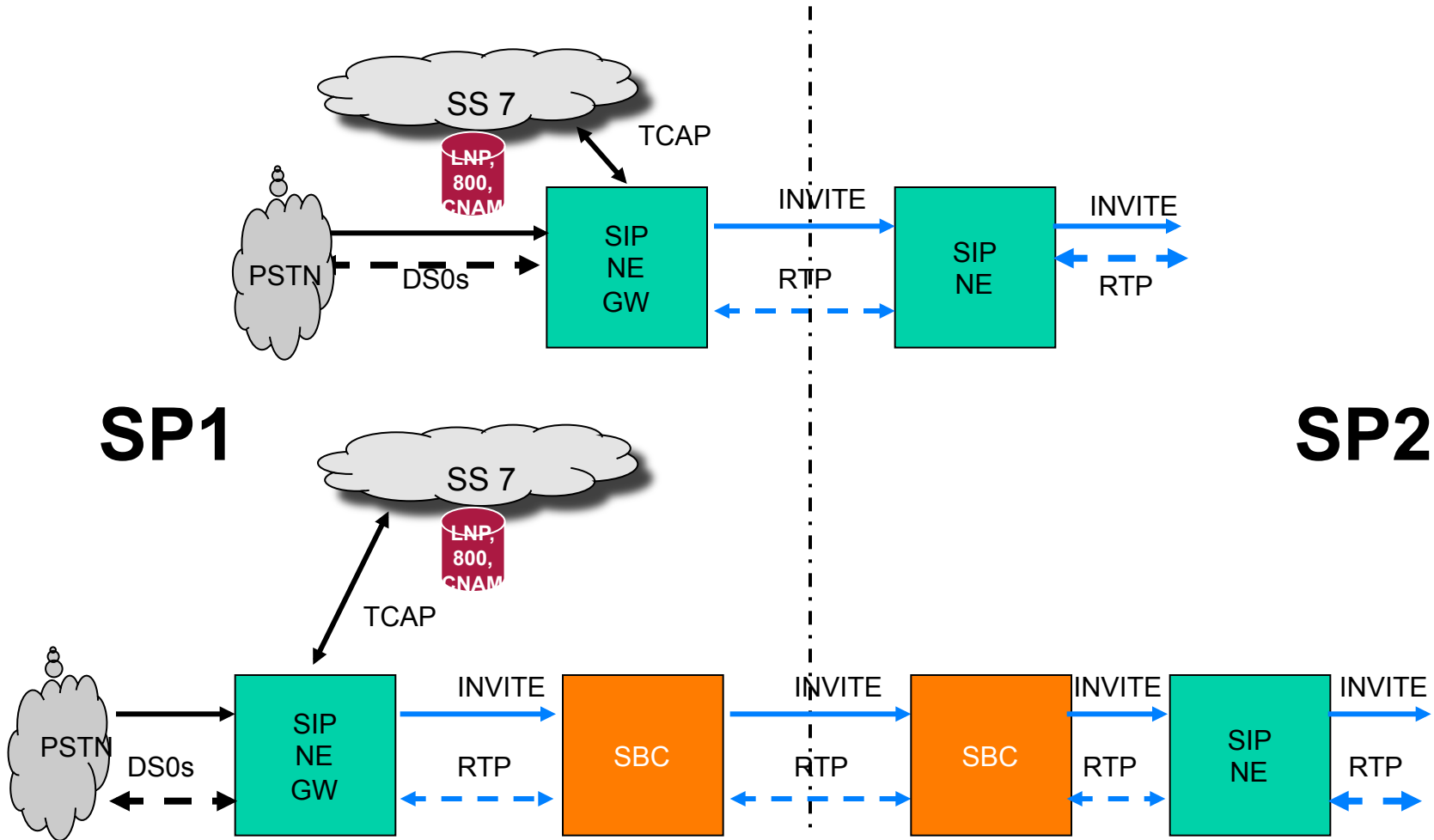
- **How can I comply with Lawful Intercept regulations?**
- **How can I provide pre-emptive Emergency Services?**



Service Provider Interconnect (SPI) Work Group

- **Publish Requirements for Service Provider (SP) Interconnect**
 - ❑ **All IP Networks**
 - ❑ **IP Network Interconnect with TDM**
 - **VoIP to TDM Termination**
 - **TDM Origination to VoIP Termination**
 - ❑ **IP Network Interconnect for ISUP Termination (PSTN-VoIP-PSTN)**
- **Common Architecture and Terminology**

Interconnection Model 3



May 19, 2005

11

SPI Work Group Status

- **Draft of Technical Requirements, Architecture, and Recommendations Document in Review**
- **Service Provider Interconnect Test Plan Next Document**
- **NOTE: IPCC Is Only Organization Working on SPI That is Neither Tied to Wireless (e.g., 3GPP) or Wireline (e.g., MSF)**
 - ❑ **Groups Liaise With Each Other**
 - ❑ **IPCC Has Broadest Membership**

Barriers to VoIP

- **Service Provider Members Indicated a Set of Crucial Needs at Service Provider Border**
- **Border**
 - Service Provider – Service Provider**
 - Service Provider – Access Network**
- **Issues**
 - Revenue Assurance**
 - Service Reach**
 - Regulatory Requirements for PSTN Emulation**

Revenue Assurance

- **Billing for IP Interconnect**
 - ❑ **Enable Premium Billing Based on Usage (sessions, bandwidth, etc.) Rather Than Simply Connectivity**
- **Customers and Suppliers**
 - ❑ **Protect Customers from Establishing a Direct Relationship With Suppliers**
 - ❑ **Protect Against Suppliers Discovering Who Customers Are**

Revenue Assurance

- **Protect Network from Denial of Service Attacks**
 - ❑ **Block Unauthorized Traffic at Ingress Border**
 - ❑ **Blocking at Egress ("Pure End-to-End Model") Puts Burdens on Service Network and Egress Equipment**
- **Ensure Customers / Partners Are Abiding By Terms of Service-Level Agreements (SLAs)**
 - ❑ **Ask for Compressed Voice (8kb/s), But Send Full Video (1Mb/s)**
 - ❑ **Handle Violations on a Per-Subscriber Basis**
 - **Friendly Reminders (Gold Customers)**
 - **Terminated Sessions (Bronze Customers)**

Service Reach

- **Signaling Inter-Working**
 - ❑ **Many Asian Networks are Still H.323-based**
 - ❑ **Most Backbone Carriers are SIP-based**
 - ❑ **A SIP-based Carrier Needs to Interconnect With H.323-based Networks**
- **Media Inter-Working (Transcoding Services)**
 - ❑ **Many Access Networks Use Compressed Codecs (e.g., G.723.1, G.729)**
 - ❑ **Most Backbone Networks use G.711**
 - ❑ **Often Not Economical to Put Transcoding Resources in All Egress Devices**
 - ❑ **Better to Put Transcoding Resources at Ingress (Network Border)**

Service Reach

- **Signaling “Repair”**
 - ❑ **Some Vendors Implement Protocols Before Standards Established**
 - ❑ **Not All Vendors Fully Follow Specifications**
 - ❑ **To Interconnect, Need Signaling Mediation**
- **Service Inter-Working**
 - ❑ **Vendors Implement Proprietary Solutions for Service Features (Call Waiting, Park)**
 - ❑ **Proprietary Extensions for Service Features Need Mediation Between Networks**

Regulatory Requirements

- **Lawful Intercept**
 - ❑ **Many Jurisdictions Require Recording of Signaling and, Separately, Media**
 - ❑ **Targets of Intercept Must Not Know They Are Being Recorded**
- **Emergency Services**
 - ❑ **Priority Routing and Pre-emption of Resources on Shared Facilities**
 - ❑ **Location Services**

Industry Brought Problems, IPCC Brought Solutions

- **Service Provider Interconnect Input**
 - ❑ **Service Provider-Driven**
 - ❑ **“Market Needs”**
- **Session Border Control Output**
 - ❑ **Vendor and Service Provider-Driven**
 - ❑ **“Market Offers”**
- **Result: Session Border Controllers (SBC) White Paper**

SBC White Paper

- **Contributions and Editing From IPCC Member Companies, Including**
 - ❑ **Brooktrout, NexTone, Netrake, Acme Packets**
- **Describes, in Technical, not Vendor, Terms How to Address Service Provider's Needs**
 - ❑ **Revenue Assurance**
 - ❑ **Service Reach**
 - ❑ **Regulatory Issues**

SBC White Paper

- **Describes SBC Applications**
 - ❑ **Service Provider Peering**
 - ❑ **Access Network Interconnect**
 - ❑ **Broadband Interconnect**
 - ❑ **...**
- **Also Includes Market Research from Infonetics, IDC, and Yankee Group**

Summary

- **Discussed the IPCC Session Border Controller White Paper**
 - ❑ <http://www.packetcomm.org>
- **Discussed the Issues Holding Back Deployment of VoIP, Addressed by Session Border Controller White Paper**
- **Introduced the International Packet Communications Consortium, a Service Provider, Regulatory, and Vendor Organization Focused on Advancing Real-Time Packet Communications**



Thank You

Prof. Eric Burger
Member of the Board, IPCC
Member of the Board, SIP Forum
CTO, Brooktrout Technology, Inc.
eburger@brooktrout.com

May 19, 2005

23