Who is Tim Kraskey!

- Entrepreneur
- Educator
- Marketing and Operations Executive
- Angel, Venture Capitalist and Investor
Who is Calabrio, Inc?

- Formed in 2007 as the software products division of Spanlink Communications, Inc.
- Develops and distributes customer interaction software
- **Calabrio Unified Interaction Suite** consists of:
  - Cisco Agent Desktop
  - Cisco Supervisor Desktop
  - Cisco Workforce Optimization
  - Calabrio Workforce Management
  - Calabrio Quality Management
- Distribution through Cisco OEM and Channel Partners
- Software on more than 500,000 desktops

Macro Market Trends

- **Legacy (TDM) to IPTel Migration**
  - Gartner by 2008 New Sales of IPTel = 97%
  - SIP is a key driver
- **IP Contact Centers and advanced applications lag (2 Years) IPTel migration**
- Drive to Integrated (Unified) Application Solutions
Cisco is Winning the VoIP Race
per Synergy Research Group—Q4 CY06

WW Enterprise & SMB Voice Shipments: Revenue


Market Problem

- Integrating desktop applications is very complex
- No seamless integration of best practice and processes that drive relationship improvements
- SIP and SOA help but are they standards?
  - Many extensions to the standards
- VoIP and Contact Center Applications = "Science Project"
Problem: “Customer Interaction Networks” Require a “Suite” of Integrated Application

YankeeGroup Study: Problems with a Typical Agent Desktop

- More than 65% of contact center agents use three or more applications.
- More than 25% use five or more applications.
- 70% say they waste time switching between applications.

Source: Yankee Group, 2006
Market Opportunity

- “All Customer Interaction Apps” up for Grabs
- Cisco is the No. 1 IPTel leader today!
- Microsoft is coming!
- Market size near $4B
- Applications for the Virtual Agents and Knowledge Workers

IP Adoption - Enterprise and Contact Center

<table>
<thead>
<tr>
<th>Year</th>
<th>TDM ACD. CAGR: - 6%</th>
<th>IP ACD. CAGR: + 39%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td># WW Agent Seats</td>
<td># WW IP Agent Seats</td>
</tr>
<tr>
<td></td>
<td>4,800,714</td>
<td>1,632,243</td>
</tr>
<tr>
<td>2007</td>
<td>5,040,750</td>
<td>2,167,523</td>
</tr>
<tr>
<td>2008</td>
<td>5,262,788</td>
<td>2,752,250</td>
</tr>
<tr>
<td>2009</td>
<td>5,557,427</td>
<td>3,390,030</td>
</tr>
<tr>
<td>2010</td>
<td>5,835,298</td>
<td>4,084,709</td>
</tr>
</tbody>
</table>

- 85% of CC < 100 Seats in Size
SIP Interoperability and Extensions

Slides Courtesy of Edwin E. Mier, CEO, Mier Consulting, LLC
Kunkletown, PA
emier@mierconsulting.com
610-295-5132
SIP Interop: Different Views

- Summary results of third annual survey of SIP-implementing vendors
- Who are the SIP interop leaders?
- SIP-interop status of seven leading IP-PBX vendors

Where SIP Matters: Key Product Categories

- IP PBXs and call controllers
- Gateways
- SIP Endpoints (incl softphones, wireless)
- SIP application servers (UC, conf, collab)
- SIP trunks (IP-PBX ↔ service provider)
Mier Survey says …

• Survey emailed to ~ 85 vendors
• 36 complete responses received by deadline (incompletes, duplications were eliminated)
• About 40 percent of the SIP vendor community represented (all product categories)
• SIP-based carriers were not included
• Vendors answered probing questions about their SIP implementation, interoperability and plans

Issues Asked About!

• Features: What’s standard SIP? What’s not?
• How solid are the SIP specs?
• Are SIP products interoperable today?
• What are the “most interoperable” SIP features?
• Are things getting better, re: SIP interop?
SIP Features, Extensions and Interop

• Prospects for multi-vendor interoperability
  – Solid SIP RFC features – Excellent
    • ~ 20 features matter the rest are subjective
  – “Feature codes” – Good, but vendor specific
  – Proprietary SIP extensions – Poor (w/o collaboration)
    • All vendor have them

State of SIP Specs

• Vendors asked to rate “the state of current SIP specs, from all sources …”
• “… for implementing 24 features and capabilities
• Using a 1 to 5 rating scale
  5 = complete, solid, clear, stable, unambiguous
  1 = minimal to no standardization yet; or incomplete or ambiguous; needs a lot of work
State of SIP Specs – Most Solid

State of SIP Specs – Least Solid
State of SIP Specs – So-so

State of SIP Specs – Bottom Line

- In only a few areas is there widespread agreement the specs are solid and complete (basic dozen phone features, voice mail, presence, ad hoc audio and point-point video conferencing)
- “Advanced” applications and phone features are rated generally as “there are some specs, but a lot more detail is needed”
SIP Product Interoperability

- Vendors asked to “Assess the state of inter-vendor SIP-product interoperability …”
- Given 8 environments
- And using a 1 to 5 rating scale
  5 = Plug-and-play, full-featured interoperability
  1 = No chance of any meaningful interoperability without a lot of work and tweaking

For "basic telephony features," w/ SIPIT and direct testing between 2 vendors
For SIP trunking, IP-PBX to carrier, 2 days testing and adjustmn’t
For "basic telephony features," no prior collaborat’n between 2 independ vendors
For "advanced telephony features," w/ SIPIT and direct testing
SIP Product Interoperability

For SIP trunking, IP-PBX to carrier, based on independent implement’n of SIP Forum’s spec
For “collab and multimedia apps,” w/ SIPIT and direct testing between 2 independ vendors
For “advanced telephony features,” no prior collaborat’n between 2 independ vendors
For “collab and multimedia apps,” no prior collaborat’n between 2 independ vendors

SIP Product Interop – Bottom Line

• Interop prospects are now good for “basic” telephony features, even with no prior collaboration between vendors
• Good chance of SIP-trunking interop … after a couple days of shake-down testing
• All else, users should insist on SIPIT or direct collaboration/testing between 2 vendors
Most interoperable SIP endpoints

- Top 5 SIP endpoint vendors, based on how many other vendors claim interop with:
  - Polycom
  - Cisco phones w/ SIP load
  - CounterPath / Xten / eyeBeam softphone
  - Grandstream
  - Snom

Other very interoperable SIP gear

- Many vendors also claim interop with:
  - Hitachi wireless
  - Linksys
  - Quintum gateways
  - Aastra
  - Thomson
Most interoperable SIP trunks

• Leading SIP-trunk-accessible services, based on how many vendors claim interop:
  – AT&T (Flex Reach)
  – Verizon (Verizon Business, MCI)
  – cBeyond
  – AGN Networks
  – Bandwidth.com

IP-PBX SIP Support

• A comparative look at the SIP status, claims and plans of seven IP-PBX vendors:
  -- Alcatel-Lucent
  -- Cisco
  -- Nortel
  -- 3Com
  -- Avaya
  -- Mitel
  -- Siemens
Alcatel-Lucent SIP Support

- Main SIP-supporting platform(s): OmniPCX Enterprise, and OmniTouch Unified Comms applns (media) server
- Is SIP primary call control? **Optional in PBX, along with H.323. Native SIP in app server.**
- Vendor offers SIP phones? **No**
- SIP standard RFC features: **16 (100%)**
- SIP draft-based features: **0 (0%)**
- SIP proprietary headers or features codes: **0 (0%)**

Alcatel-Lucent SIP Support

- SIP-call Security: **No TLS – Transport Layer Security (IPsec for call control), some secure RTP (to SIP applns server), authentication**
- Extent of validated SIP interoperability:
  - 3rd-party SIP phones: **3 vendors**
  - Carrier services via SIP trunks: **18 (based on IETF, SIP Forum and TISPAN specs)**
  - Applns server works with: **2 other vendors’ SIP call controllers**
Avaya SIP Support

- Main SIP-supporting platform(s): SIP Enablement Services (SES), a separate server from Comm Mgr
- Is SIP primary call control? Only via separate SES. Primary is proprietary H.323. H.248 too, vendor says
- Vendor offers SIP phones? Yes (half-dozen models + soft)
- SIP standard RFC features: 5 (10%)
- SIP draft-based features: 0 (0%)
- SIP proprietary headers or features codes: 55 (90%)

Avaya SIP Support

- SIP-call Security: TLS, no secure RTP, authentication
- Extent of validated SIP interoperability:
  - 3rd-party SIP phones and gateways: 17 vendors
  - Carrier services via SIP trunks: 5 (Currently supporting all the SIP Forum's IP-PBX / Service Provider Interop recommendations for IP-PBX's labeled as MUST
  - Applns server: Meeting Exchange is SIP based
Cisco SIP Support

- Main SIP-supporting platform(s): **Unified Comms Mgr (nee CallManager)**
- Is SIP primary call control? **Yes, and/or SSCP. MGCP to gateways, and H.323 via protocol gateway.**
- Vendor offers SIP phones? **Yes** (half-dozen models + soft)
- SIP standard RFC features: **90 (50%)**
- SIP draft-based features: **20 (10%)**
- SIP proprietary headers or features codes: **70 (40%)**

---

Cisco SIP Support

- SIP-call Security: **TLS, secure RTP, and authentication**
- Extent of validated SIP interoperability:
  - 3rd-party SIP phones and gateways: **per RFC 3261**
  - Carrier services via SIP trunks: **No specific carriers or service providers cited**
  - Applns server(s): **Half-dozen appln servers; all are accessible via SIP trunks**
Mitel SIP Support

- Main SIP-supporting platform(s): **Mitel 3300 ICP**
- Is SIP primary call control? **It can be, and/or MiNet proprietary VoIP call protocol.**
- Vendor offers SIP phones? **Yes (half-dozen models), which work w/ a dozen other vendors’ call controllers**
- SIP standard RFC features: 12 (3 %)
- SIP draft-based features: 1 (< 1 %)
- SIP proprietary headers or features codes: ~300 (97 %)

**Mitel SIP Support**

- SIP-call Security: **no TLS, no secure RTP, authentication**
- Extent of validated SIP interoperability:
  - 3rd-party SIP phones and gateways: 8 vendors (but *Mitel’s SIP phones support 75 features, work with many vendor’s SIP call controllers*)
  - Carrier services via SIP trunks: 5 service providers (and SIP trunks to dozen-plus other call controllers)
  - Applns server(s): **Messaging and conference servers support SIP**
Nortel SIP Support

- Main SIP-supporting platform(s): **MCS 5100 applns server; working with CS 1000, CS 2000, CS 2100**
- Is SIP primary call control? **It can be, and/or Unistim proprietary VoIP call protocol; and H.323 support**
- Vendor offers SIP phones? **Yes, 4 models + soft, which work w/ Nortel’s call controllers**
- SIP standard RFC features: ~45 (10%)
- SIP draft-based features: ~120 (30%)
- SIP proprietary headers or features codes: ~300 (60%)

SIP-call Security: **TLS and secure RTP (by call controller)**

Extent of validated SIP interoperability:
- 3rd-party SIP phones and gateways: **9 vendors**
  (Nortel’s SIP phones work with Nortel SIP-based call control)
- Carrier services via SIP trunks: **1 service provider cited, SIP trunks to 4 other vendors’ call controllers**
- Applns server(s): **Vendor’s MCS 5100/5200 is primarily a SIP-based conferencing and applns server**
Siemens SIP Support

- Main SIP-supporting platform(s): **New HiPath 8000, and OpenScape, a SIP-based applIns server**
- Is SIP primary call control? **Yes, with MGCP support for gateways**
- Vendor offers SIP phones? **Yes, half-dozen models + softphone**
- SIP standard RFC features: ~ 40 (40 %)
- SIP draft-based features: ~ 45 (45 %)
- SIP proprietary headers or features codes: ~15 (15 %)

Siemens SIP Support

- SIP-call Security: **TLS, no secure RTP (planned)**
- Extent of validated SIP interoperability:
  - 3rd-party SIP phones and gateways: **8 vendors** *(Siemens’ SIP phones work with several other vendors’ carrier-oriented SIP-based call controllers)*
  - Carrier services via SIP trunks: **None cited, testing based on SIP Forum SIP-trunking spec is underway**
  - ApplIns server(s): **Vendor’s OpenScape works with vendor’s call controllers, and Microsoft**
3Com SIP Support

- Main SIP-supporting platform(s): VCX, and IBM System i IP Telephony
- Is SIP primary call control? Yes
- Vendor offers SIP phones? Yes, half-dozen models + softphone
- SIP standard RFC features: ~45 (10%)
- SIP draft-based features: ~120 (30%)
- SIP proprietary headers or features codes: ~300 (60%)

3Com SIP Support

- SIP-call Security: No TLS, no secure RTP (both planned for 3Q07), authentication
- Extent of validated SIP interoperability:
  - 3rd-party SIP phones and gateways: 12 vendors (3Com’s SIP phones work with 2 other vendors’ SIP-based call controllers, supporting about 50 features)
  - Carrier services via SIP trunks: 2 service providers cited
  - Applns server: Applns server is also SIP-based
Review

• In which areas are SIP implementations most likely to operate … and not to interoperate?
• What sorts of features are being implemented as SIP extensions (feature codes, proprietary headers) and why?
• Will SIP extensions always be with us, or will most features become standardized over time?

Key Reference Sites

• IETF - http://www.ietf.org/
• SIP Forum - http://www.sipforum.org/