calabrio

There's no end to better.

Who is Tim Kraskey!

- Entrepreneur
- Educator
- Marketing and Operations Executive
- Angel, Venture Capitalist and Investor

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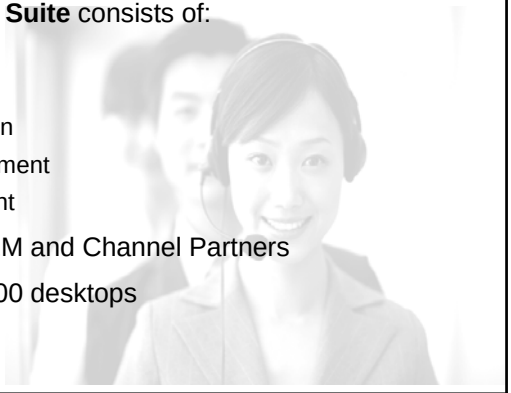
Who is Calabrio, Inc?

- 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

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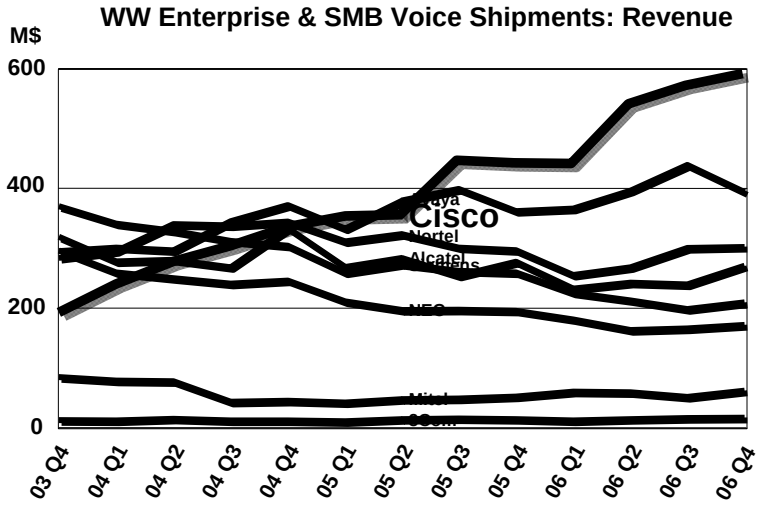
Cisco is Winning the VoIP Race

per Synergy Research Group—Q4 CY06

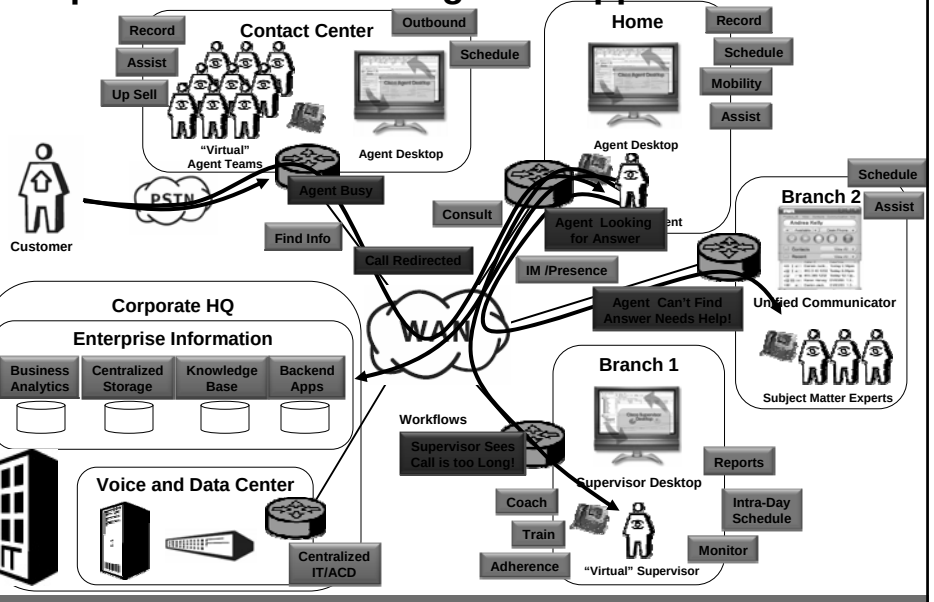


Source: Synergy Research Group (2006)

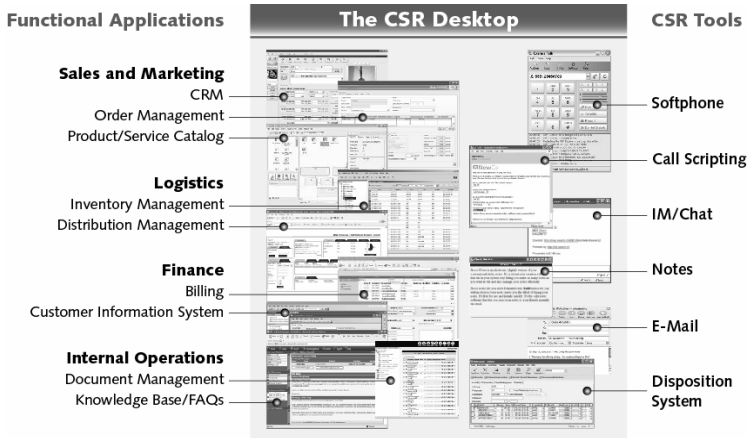
Market Problem

- 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



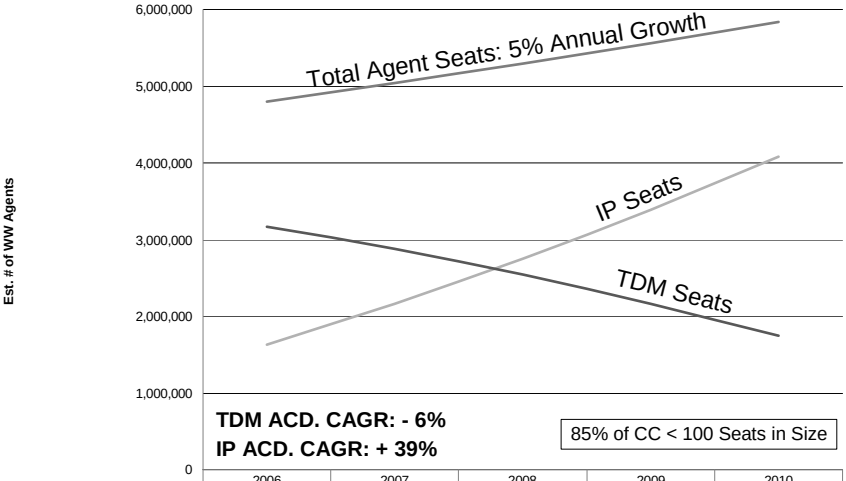
- More than 65% of contact center agents use three or more applications.
- More than 25% use five or more applications.
- 70% say they waste time switching between applications.

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

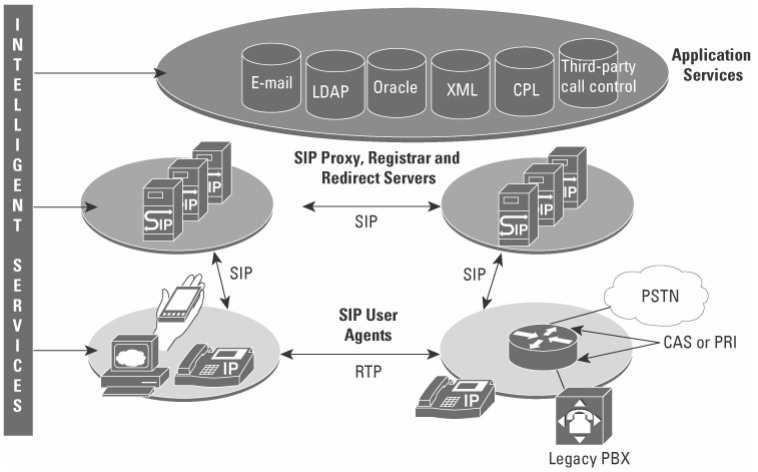


TDM ACD. CAGR: - 6%
IP ACD. CAGR: + 39%

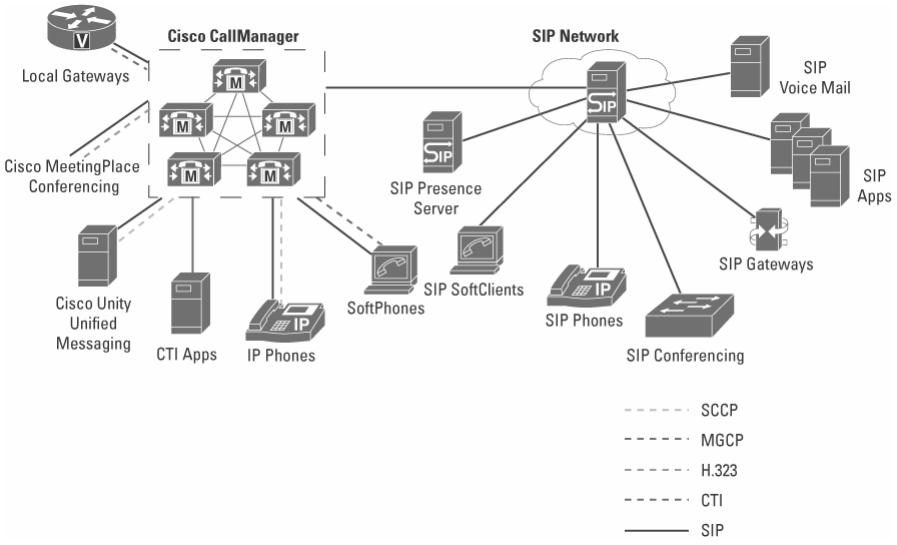
85% of CC < 100 Seats in Size

	2006	2007	2008	2009	2010
# WW Agent Seats	4,800,714	5,040,750	5,292,788	5,557,427	5,835,298
# WW IP Agent Seats	1,632,243	2,167,523	2,752,250	3,390,030	4,084,709
# WW TDM Agent Seats	3,168,471	2,873,228	2,540,538	2,167,396	1,750,589

SIP Architecture - Ref: Cisco



SIP Architecture - Ref: Cisco



SIP Interoperability and Extensions

Slides Courtesy of Edwin E. Mier, CEO,
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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

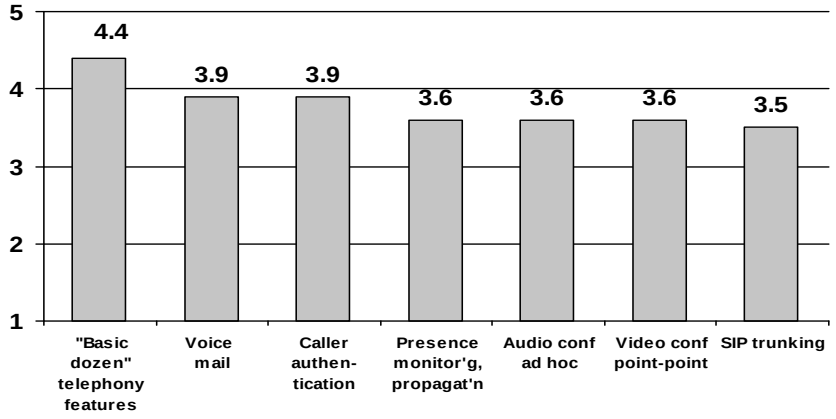
State of SIP Specs

- 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



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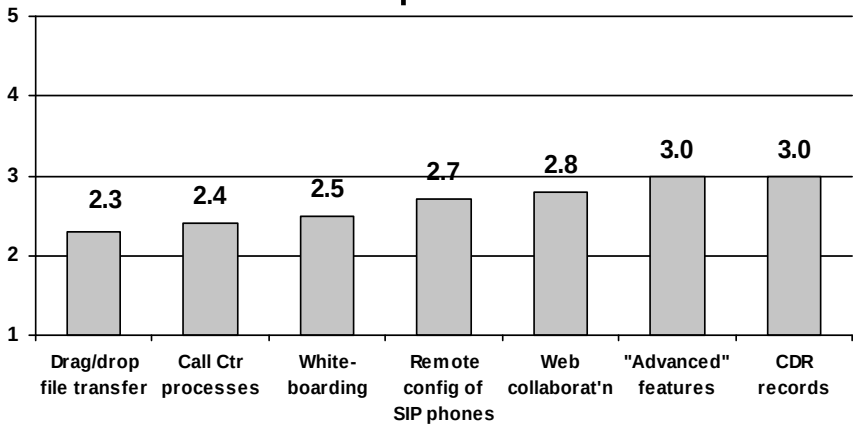
State of SIP Specs – Least Solid



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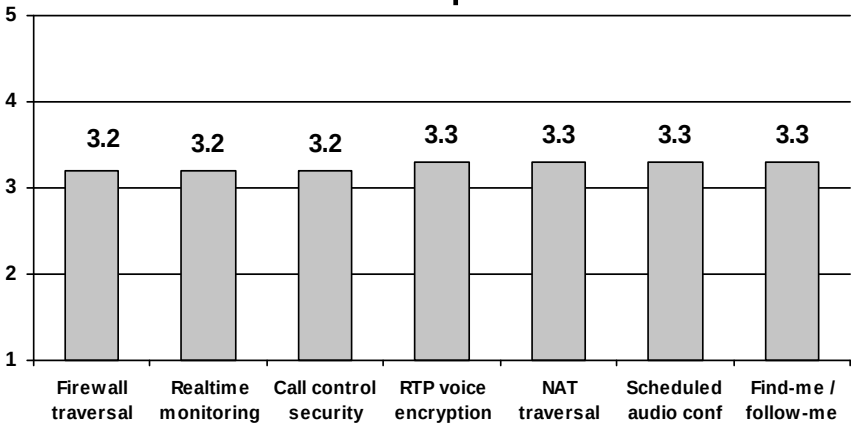
State of SIP Specs – So-so



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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"

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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

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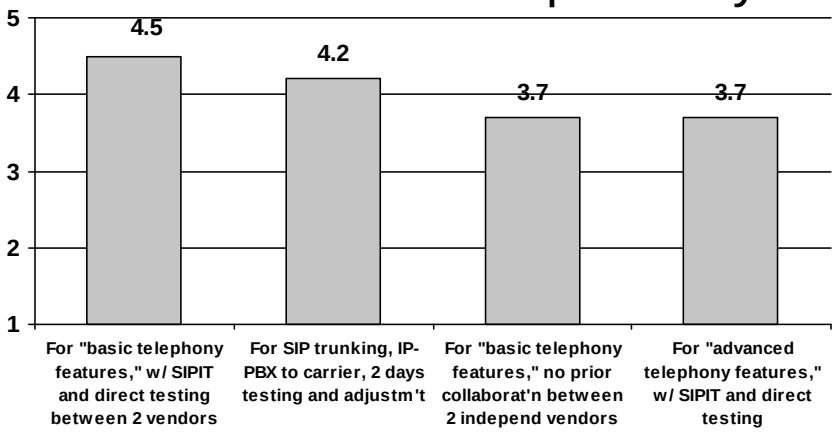
SIP Product Interoperability



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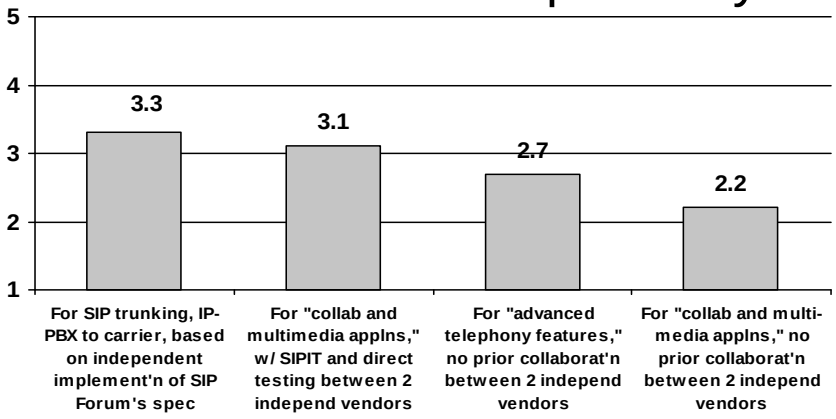
SIP Product Interoperability



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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

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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
  - -- Avaya
  - -- Cisco
  - -- Mitel
  - -- Nortel
  - -- Siemens
  - -- 3Com

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-doz models + soft)**
- SIP standard RFC features: **5 (10%)**
- SIP draft-based features: **0 (0 %)**
- SIP proprietary headers or *features codes*: **55 (90 %)**

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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**

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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-doz 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 %)**

Nortel SIP Support

- 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 applns 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 %)**

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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**
  - Applns server(s): **Vendor's OpenScape works with vendor's call controllers, and Microsoft**

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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 Fourm - http://www.sipforum.org/
- SIP Center - http://www.sipcenter.com/sip.nsf/html/2007+September+Newsletter
- SIP Foundry - http://www.sipfoundry.org/sip-forum-test-framework/sip-forum-test-framework-sftf.html