

SIP Interoperability and Extensions

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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 \leftrightarrow service provider)

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 we 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?

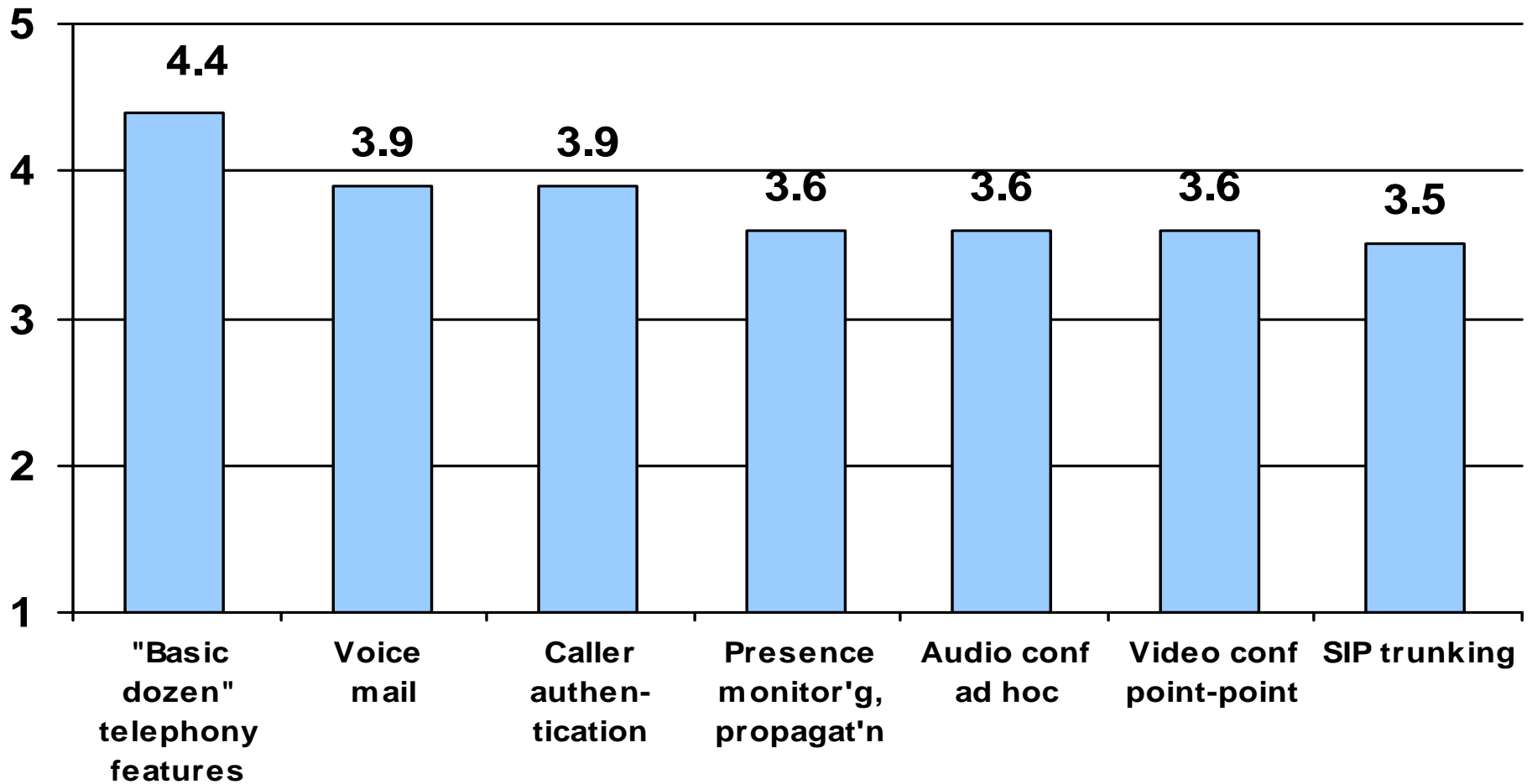
SIP Features, Extensions and Interop

- Prospects for multi-vendor interoperability
 - Solid SIP RFC features – Excellent
 - Still draft specs – Doubtful; hit and miss
 - “Feature codes” – Good, but vendor specific
 - Prop SIP ext’s – Poor (w/o collaboration)

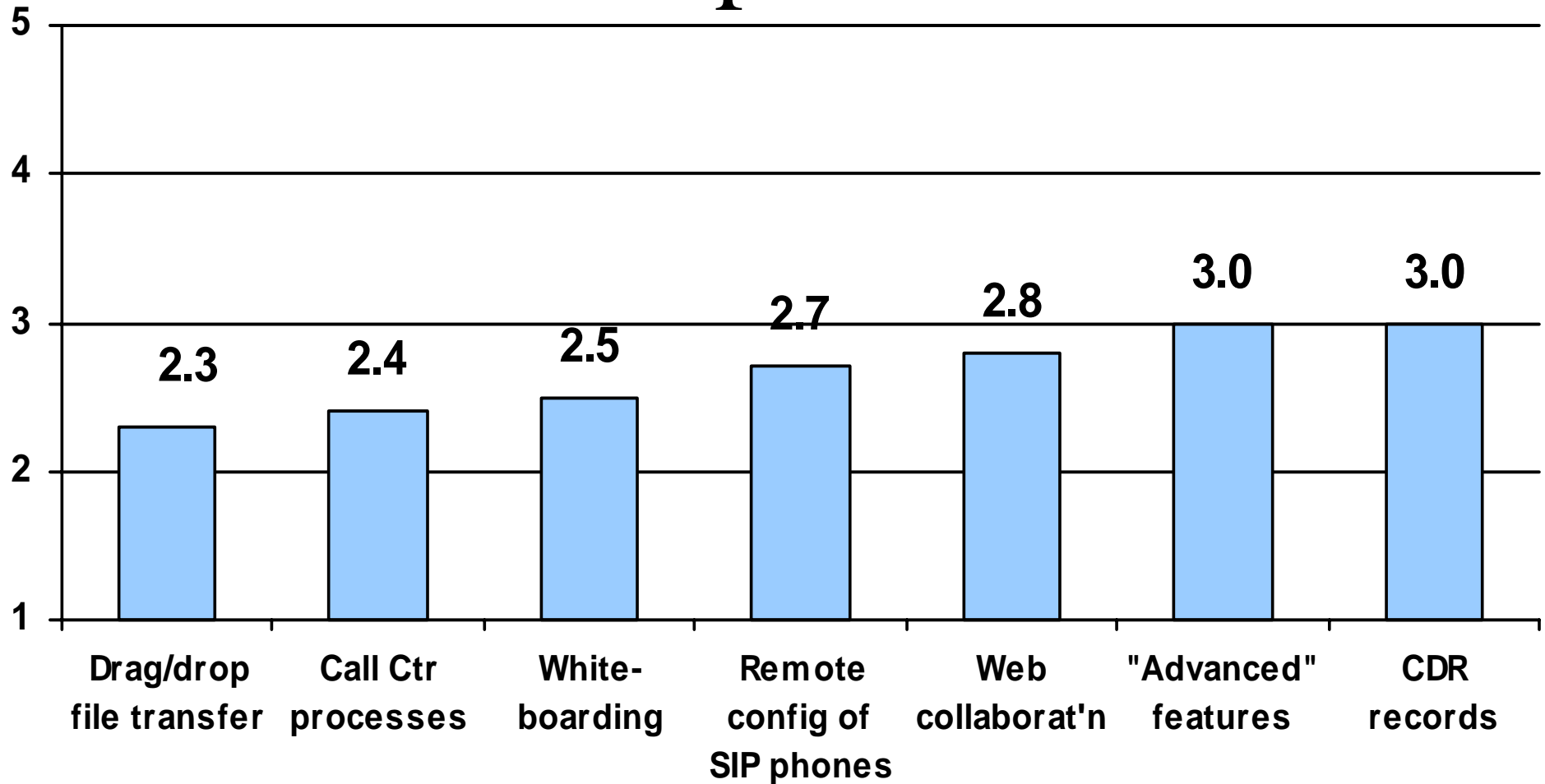
State of SIP Specs

- 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

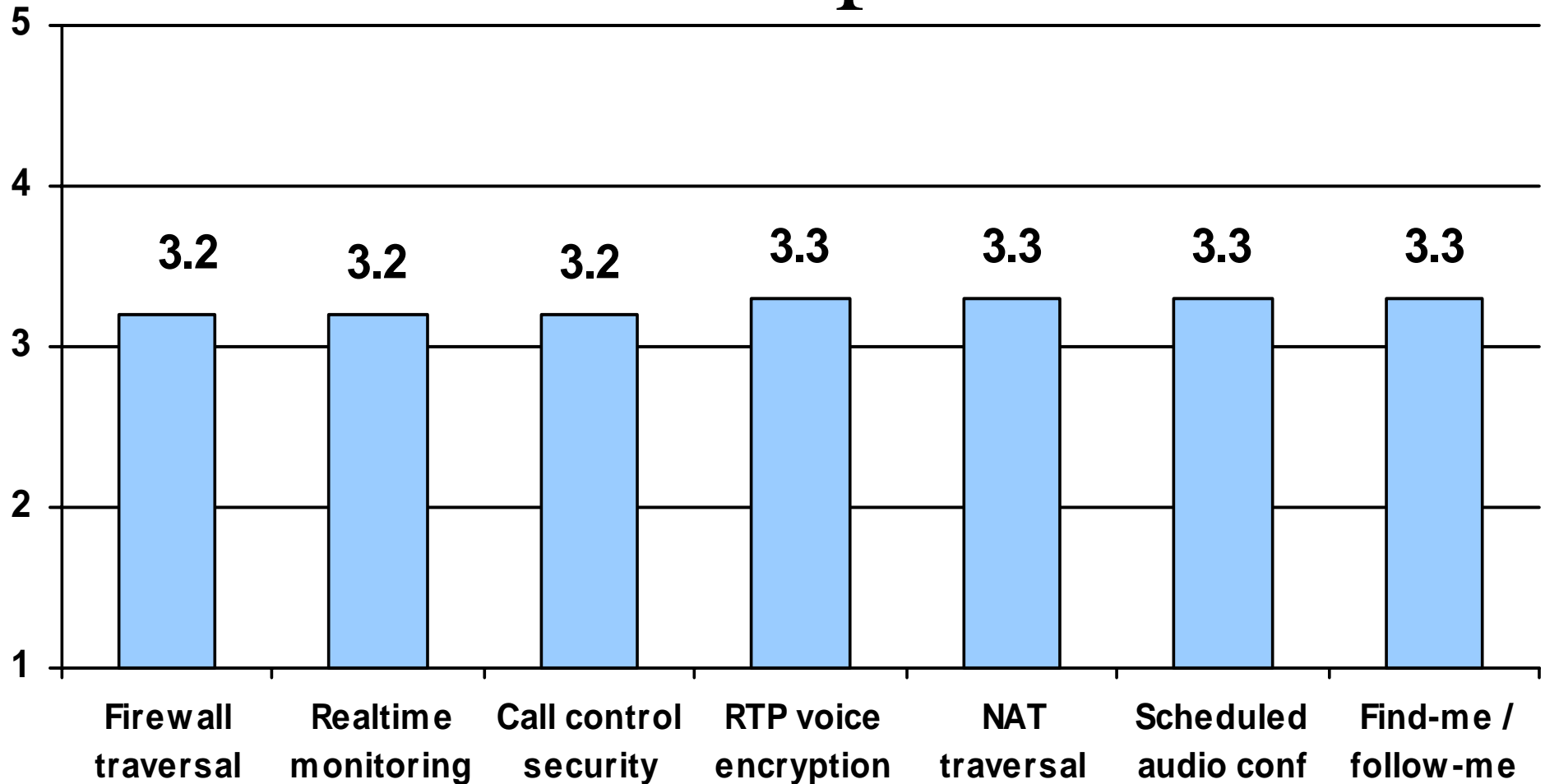
State of SIP Specs – Most Solid



State of SIP Specs – Least Solid



State of SIP Specs – So-so



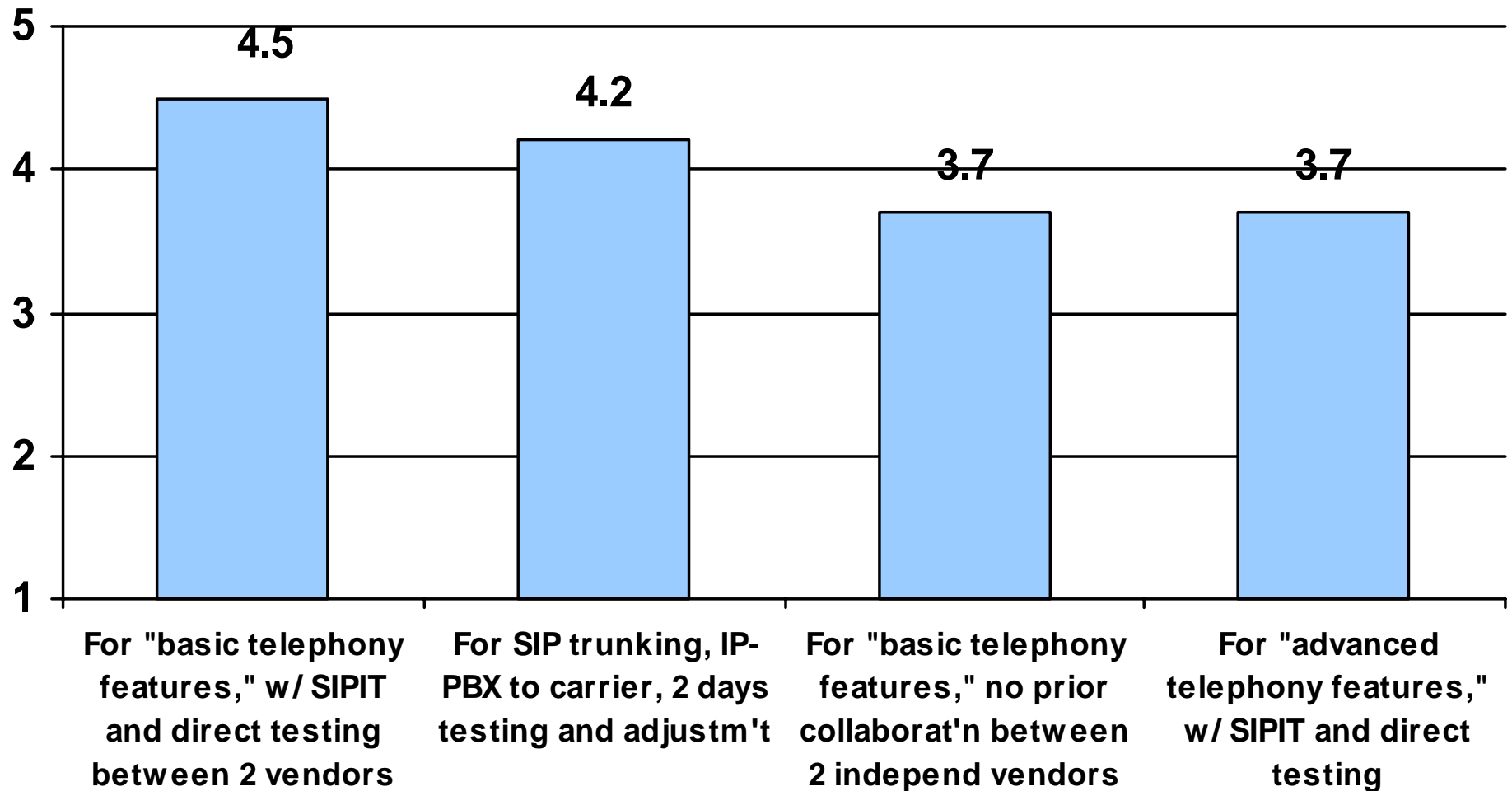
State of SIP Specs – Bottom Line

- 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”

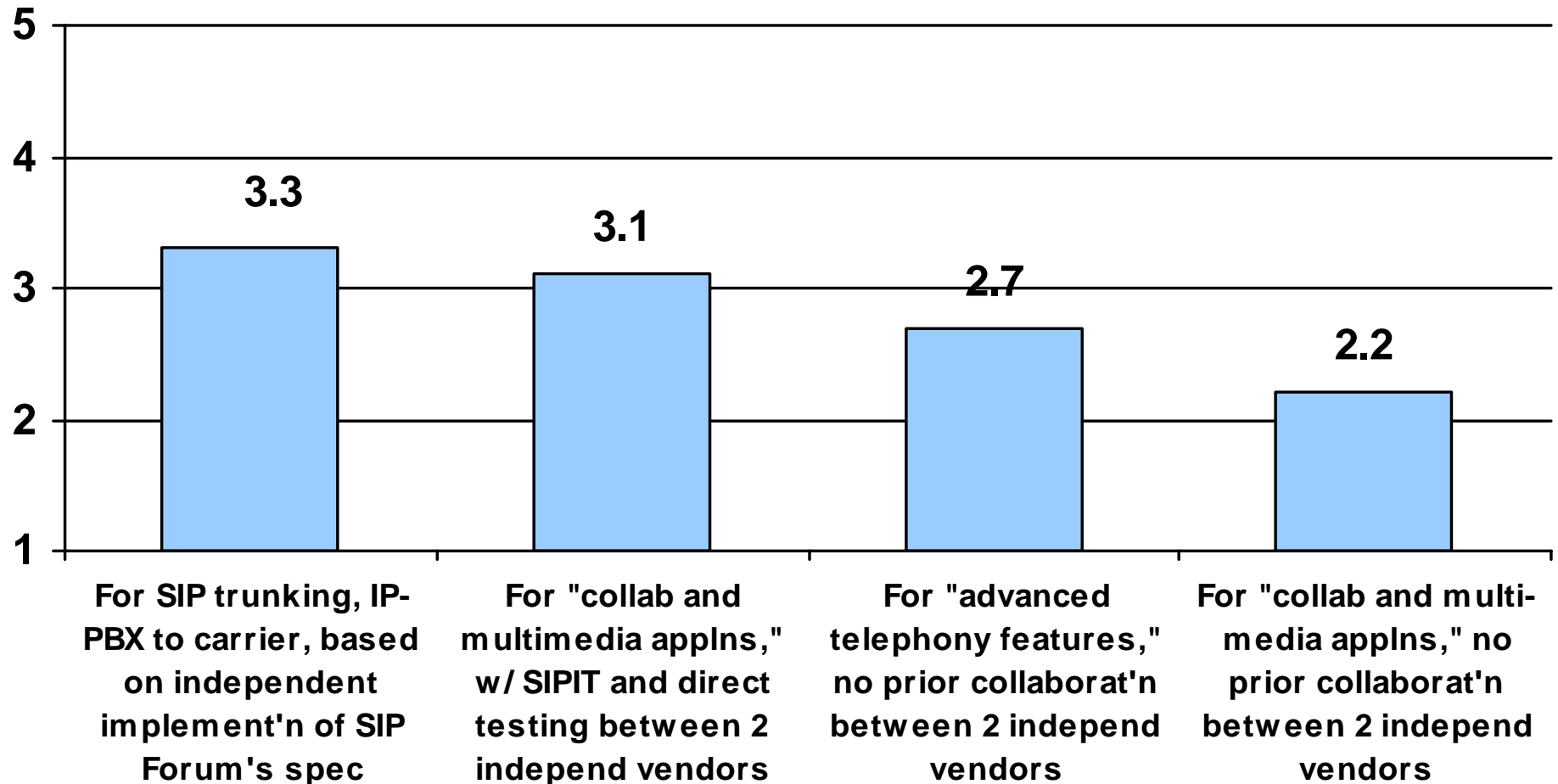
SIP Product Interoperability

- 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

SIP Product Interoperability



SIP Product Interoperability



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 (FlexReach)
 - 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 (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 %)**

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 (Skinny). 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 %)**

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 %)**

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**

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?