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# SIP.edu in a Nutshell

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# SIP.edu



What's "SIP"?

# SIP: Session Initiation Protocol (RFC 3261)

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## *SIP*

- Signalling protocol for creating, modifying, and terminating real-time internet media sessions
- SIP (and its extensions) support traditional telephony features as well as instant messaging and presence

## *First, a few caveats...*

- This is **not** a SIP tutorial
  - For a good SIP tutorial see: <http://iptel.org/sip/>
- This is **not** a SIP versus H.323 comparison
  - There are a number of good comparisons out there
  - In any case, the protocol war is over
- This is **not** a comprehensive overview of SIP activities in Internet2

# SIP Attributes

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## *Component protocol that provides*

- User registration and mobility
- Call routing, setup, tear down, and redirection

## *Makes heavy use of existing standards*

- SDP • RTP • MIME • DNS • UDP • TRIP

## *Easy and familiar feel*

- Textual encoding • Email-style headers • HTTP-style error codes • URL addresses

## *Signaling and media paths separate*

- Signaling through servers for mobility and call services
- Media on direct path for low RTT

# SIP Components

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## *User Agent (UA)*

- Hard or soft phones that initiate and receive calls
- Media to exchange is negotiated P2P between UAs

## *Registrar Server*

- Authenticates and accepts registration requests from UAs
- Maintains location DB binding user to one or more registered UAs

## *Proxy Server*

- Routes calls (possibly through a chain of proxies) to UA
- Keeps no session state (for scalability)

## *Redirect Server*

- Replies to calling UA with a redirect

***Server functionality is typically bundled***

# SIP Buzz

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## *Vigorous standards activity*

- SIP (core protocol and extensions) • SIPPING (applications) • SIMPLE (instant messaging and presence)
- not just IETF, 3GPP too!

## *Enthusiastic industry adoption*

- Phones (Microsoft, Cisco, Pingtel, Snom, ...)
- Servers (Cisco, Microsoft, dynamicSoft, Broadsoft, ...)
- Conferencing (eDial, RADVision, ...)
- Services (WorldCom, Vonage, ...)

## *Open source software*

- Servers: SER (iptel.org) • VOCAL (vovida.org)
- Soft Phones: Bonephone • SIPset • SIPHON • KPhone

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# SIP.edu

So, what's our role in all of this?

# Connectivity + Edge Innovation = New Apps

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## *Connected users will innovate*

- To connect to each other, users need superior **network connectivity, application connectivity**, and ultimately, **user-to-user connectivity**

User	Address	Application	Application Connectivity (call and presence routing)	Application	Address	User
	Presence		Network Connectivity (high-performance, end-to-end IP transit)		Presence	

## *Connected teenagers will really innovate!*

- *Internet2 interesting not just for its superior connectivity*
- *User demographics matter too (~4 million students)*
- *Tech-savvy, talk a lot, and they graduate!*

# Paths in the Snow

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*Connected users will drive disruptive change*

- But pure peer-to-peer solutions only go so far

*Smart institutions and companies will...*

- Provide tools (applications) to exploit connectivity
- Watch carefully for opportunities to add value through new services

*Campuses manage critical physical and information infrastructure that cannot be routed around*

- Directories
- Network infrastructure
- Middleware infrastructure
- Physical infrastructure
- Presence services

*We are engaging campus telecom leaders to plan for new services and infrastructure while **watching the paths in the snow***

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# SIP.edu

Enough beating around the bush;  
tell me what “SIP.edu” is!

# Better Voice Through IP: Addressing

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## *Addressing*

- Users should not be burdened with device addresses, when it's **people** they really care about
- Addresses should be mnemonic and empower enterprises to manage the identities of their users
  - sip:bob@bigu.edu
- It's time to put E.164 phone numbers behind us!
- A.G. Bell did **not** say:

*“+1-617-637-8562, come here. I need you!”*



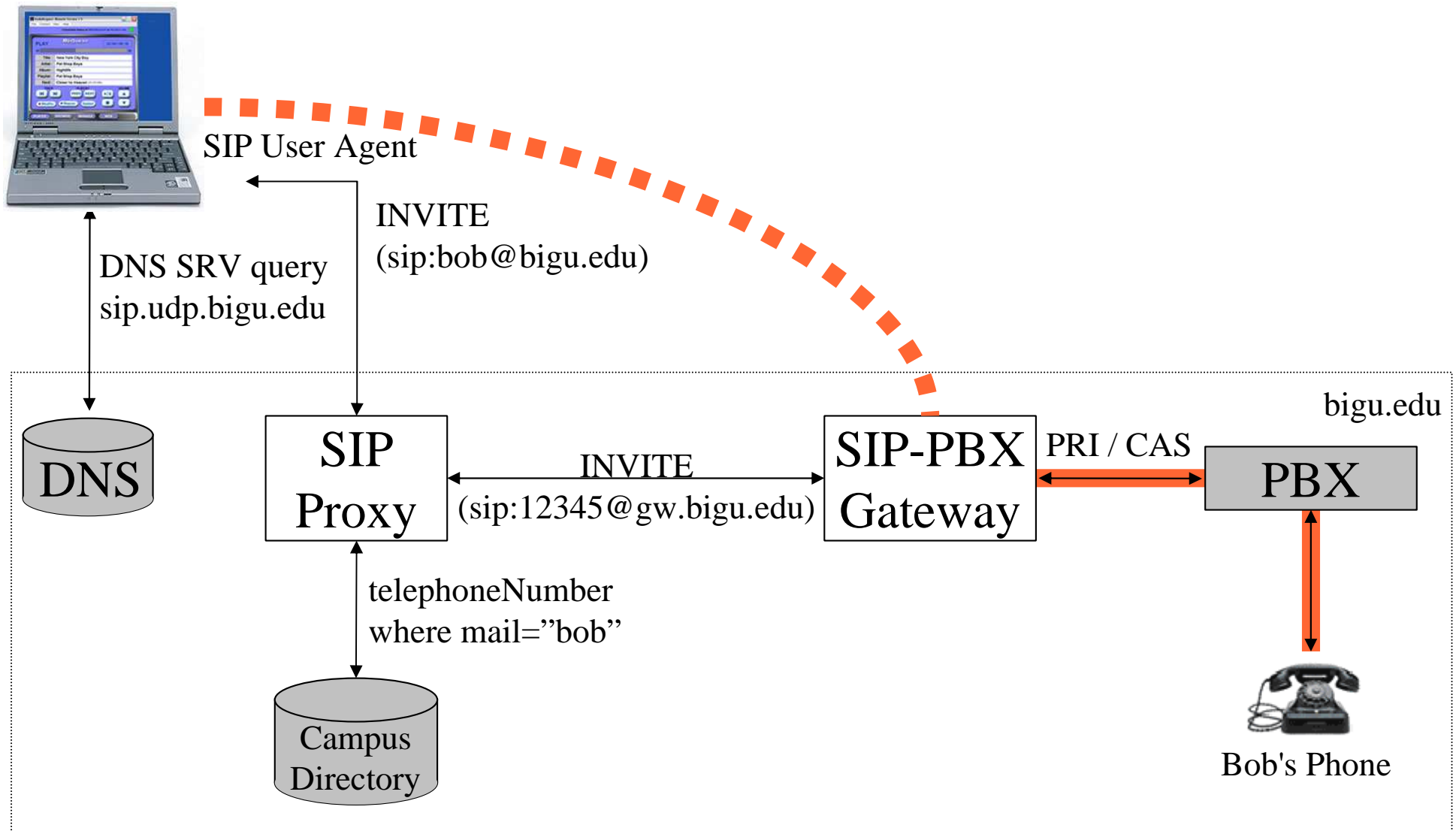
## *Goals*

- Grow SIP connectivity in Internet2
- Increase value proposition for end-user SIP adoption
- Promote convergence of voice and email identity
- Low entry-cost means for campuses to...
  - Provide a useful service (users voice-reachable at their email addresses)
  - Get their feet wet with SIP

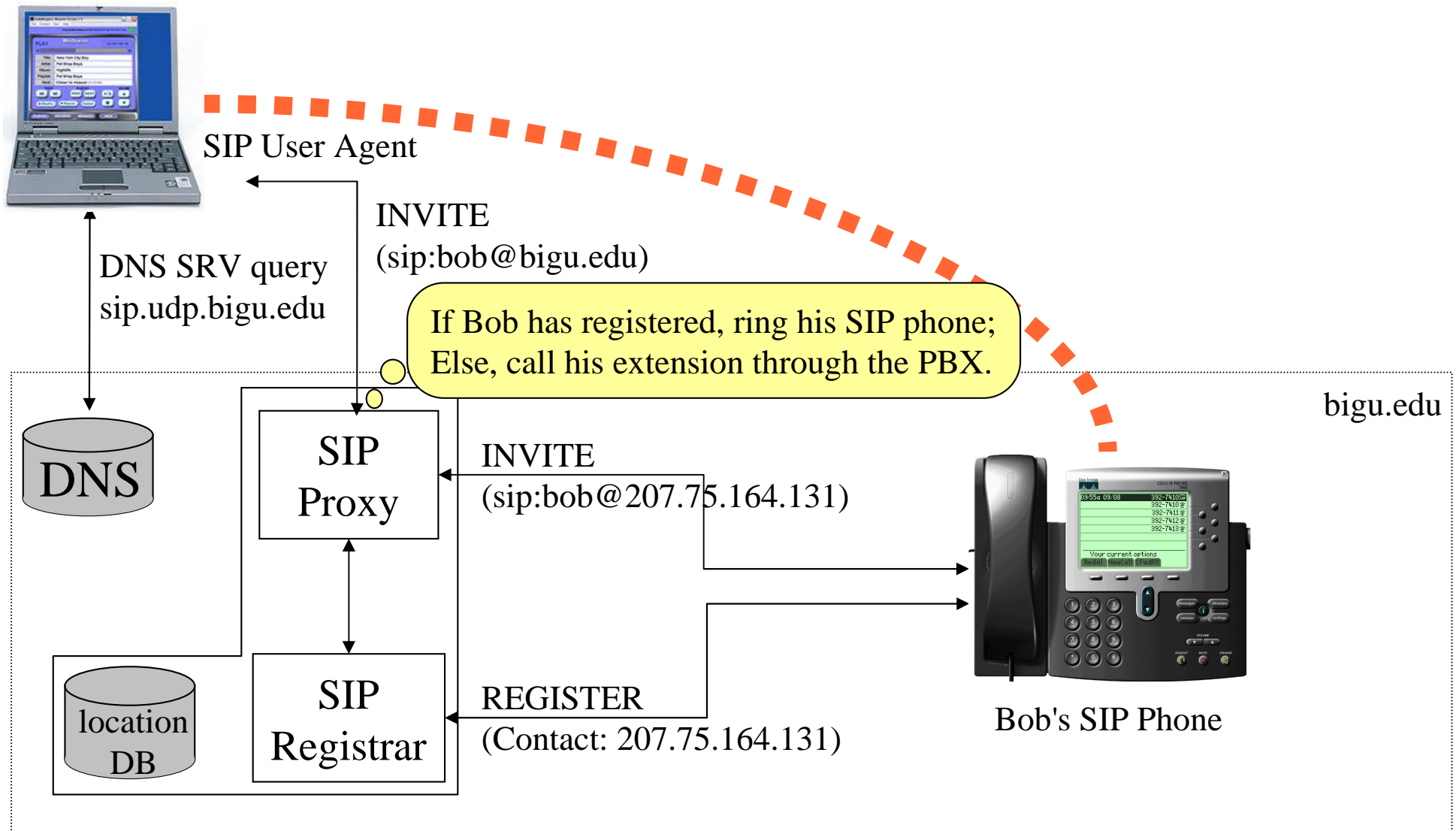
## *Means*

- Publishing “cookbook” with several alternative “recipes”
- Obtaining corporate sponsorship and promotional pricing

# SIP.edu Architecture (Phase 1)



# SIP.edu Architecture (Phase 2)





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