



# **SIP.edu Project**

## **TERENA VoIP Workshop**

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June 5, 2005

# SIP.edu

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- Goals
  - Grow SIP connectivity on the Internet
  - Increase value proposition for end-user SIP adoption
  - Promote converged identity - email-style addressing
  - Provide a useful service; while supporting enhanced campus services and experiments
  
- Means
  - Publishing “cookbook” with several alternative “recipes”
  - Obtaining corporate sponsorship and promotional pricing
    - Cisco, Avaya, Pulver.com so far
  - Build community of SIP practitioners

# Why Phone NUMBERS?

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- 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

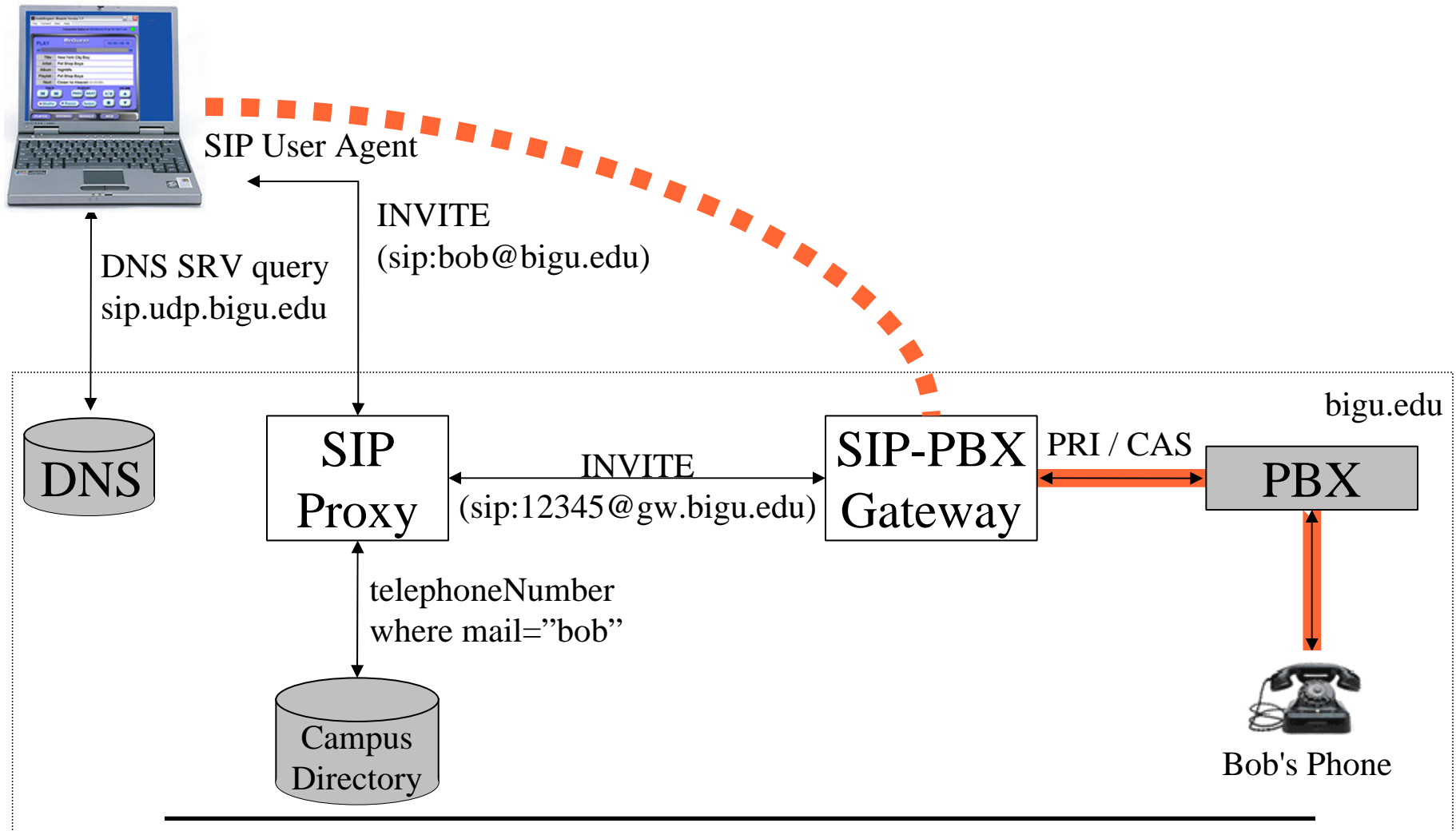
**sip:dbaron@mit.edu**

- It's time to put E.164 phone numbers behind us!
- A.G. Bell did not say:

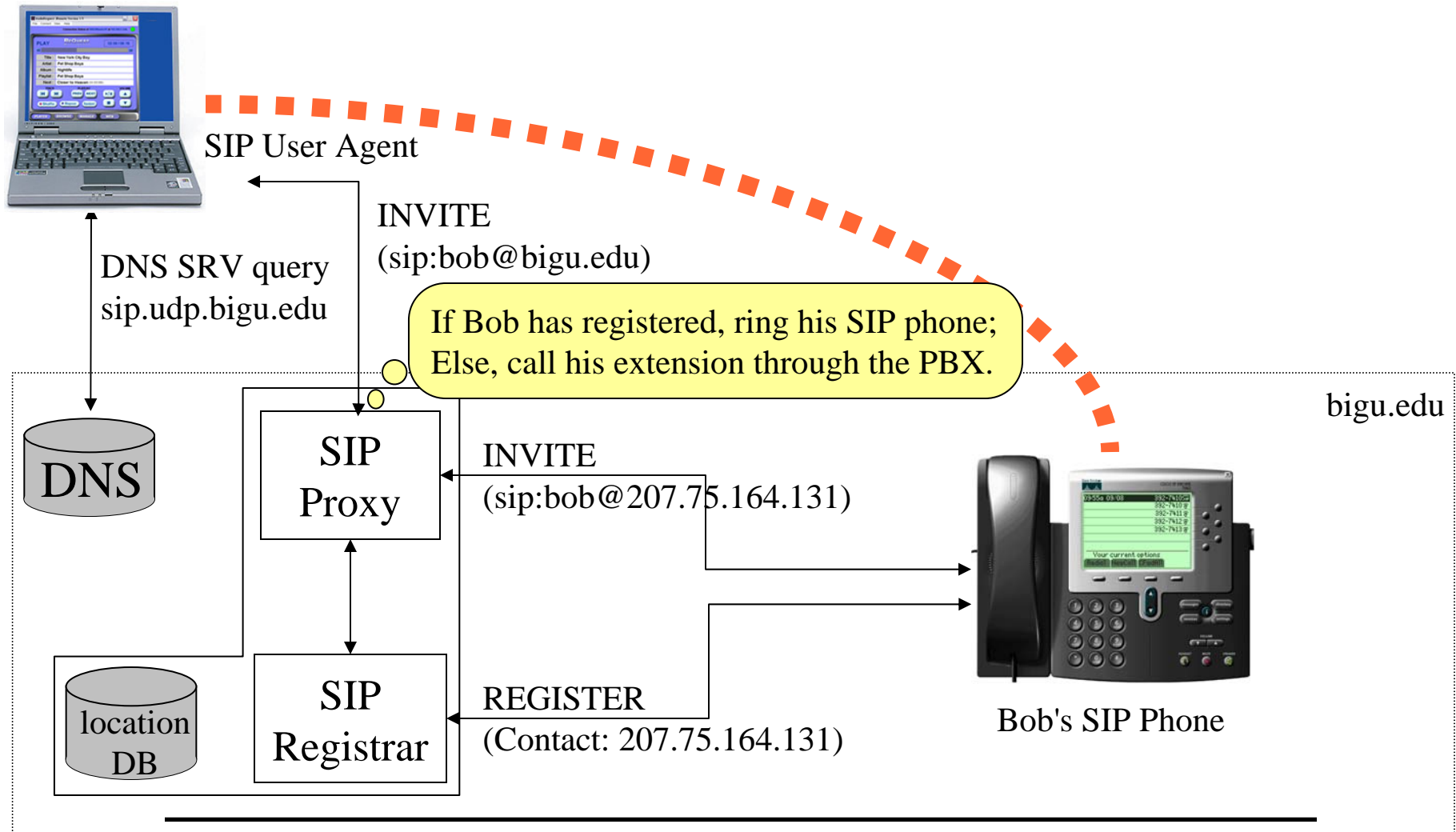
*“+1-617-252-1232, come here. I need you!”*



# SIP.edu Architecture (Phase 1)



# SIP.edu Architecture (Phase 2)



# SIP.edu Components

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- DNS Server
  - Add SIP SRV records to existing servers
- SIP Proxy Server
  - Also acts as SIP registrar
  - Can support “aliases” for legacy phone numbers
  - Mimics campus dial plan
- LDAP Server (or other source of directory data)
  - Has mapping of email to phone number
- SIP Gateway
  - Connects to existing PBX or Centrex
  - Could also connect to proprietary VoIP system

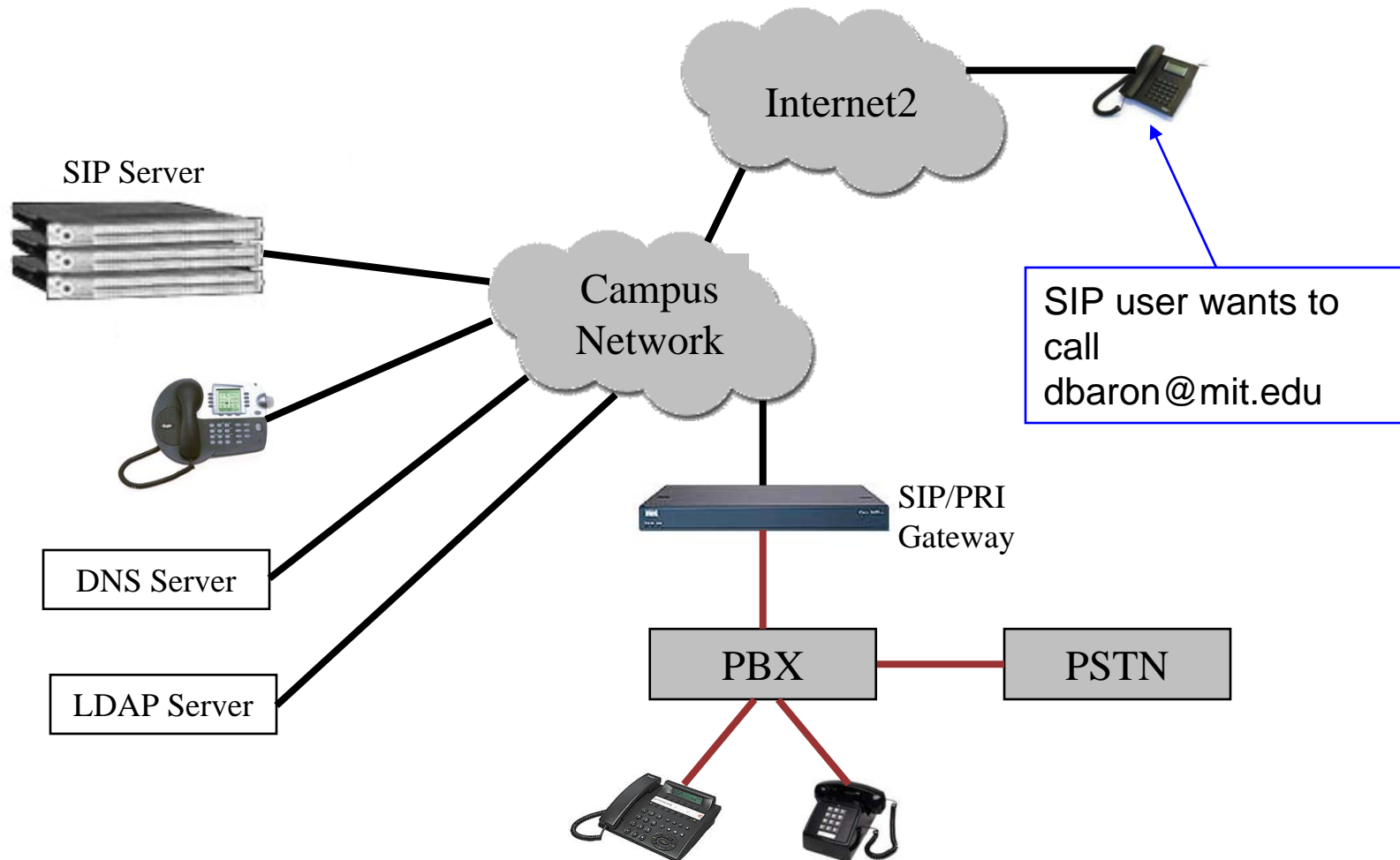


# SIP.edu Call Flow Example

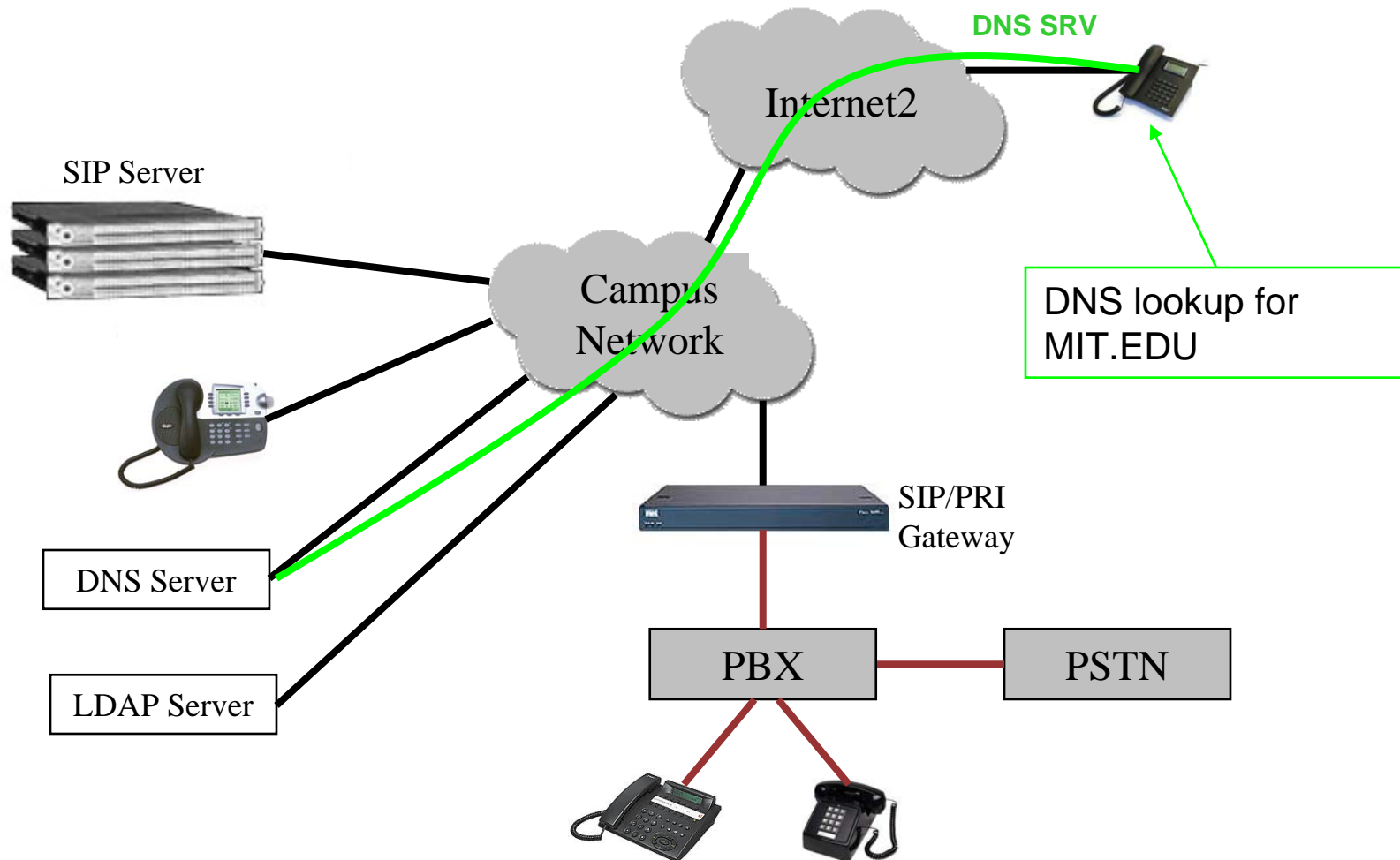
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- SIP DNS lookup for MIT.EDU points to SIP proxy
  - Sends INVITE to dbaron@MIT.EDU to proxy
- SIP proxy checks MIT directory
  - Maps call to PBX extension – eg. 21232@mit.edu
- SIP proxy checks dial plan
  - Routes call to PBX gateway
- PBX rings phone

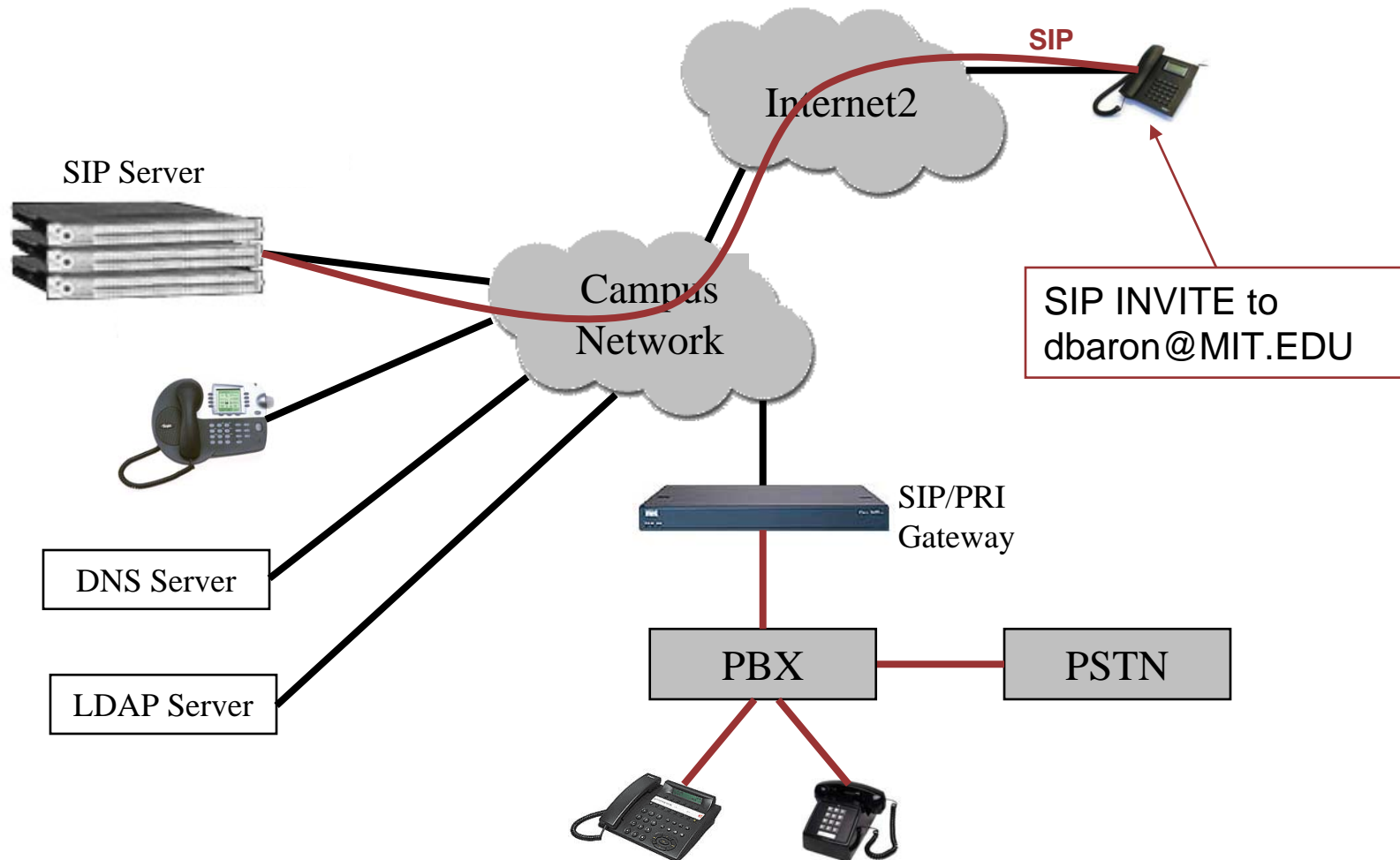
# SIP.edu Configuration



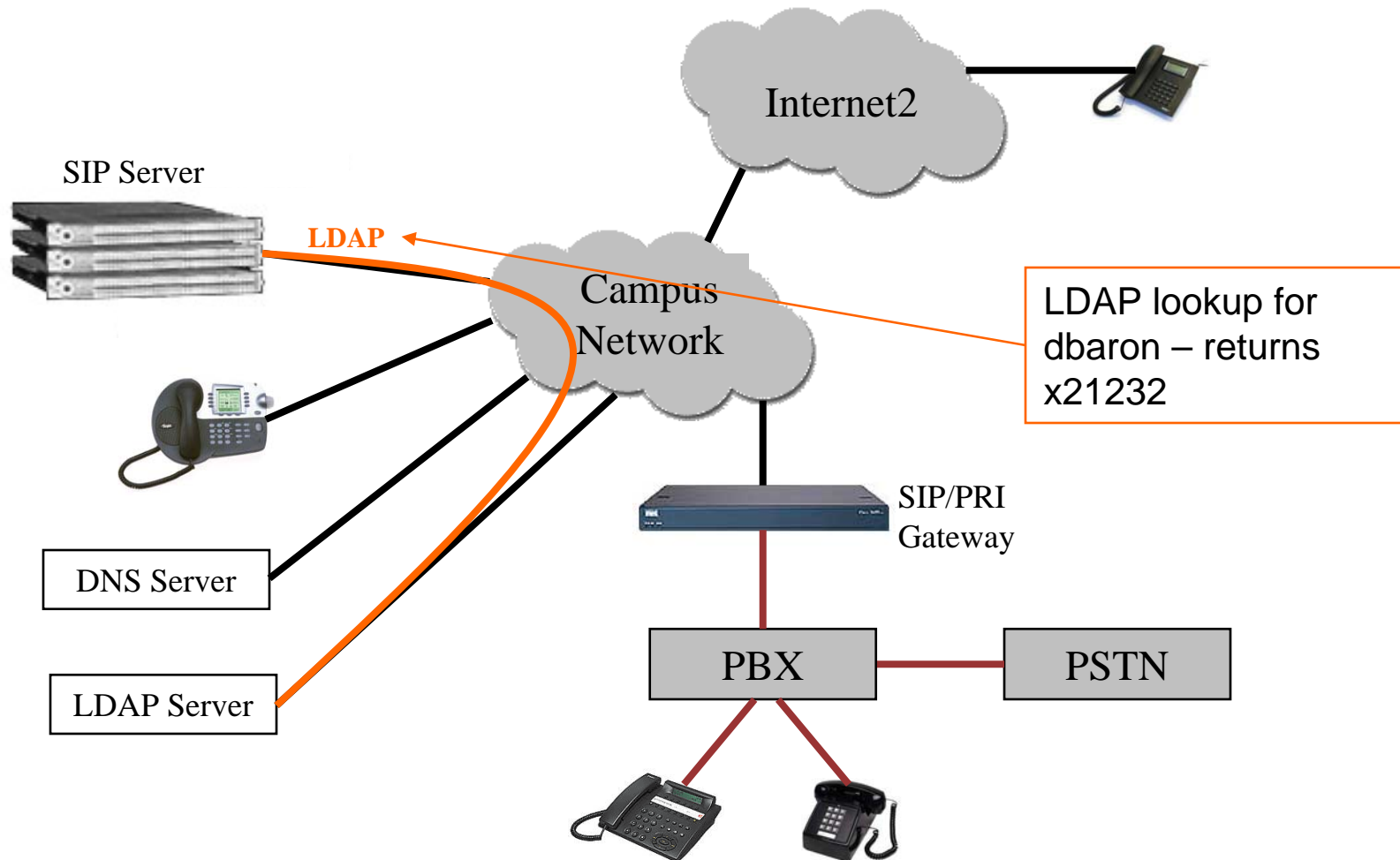
# DNS SRV Lookup



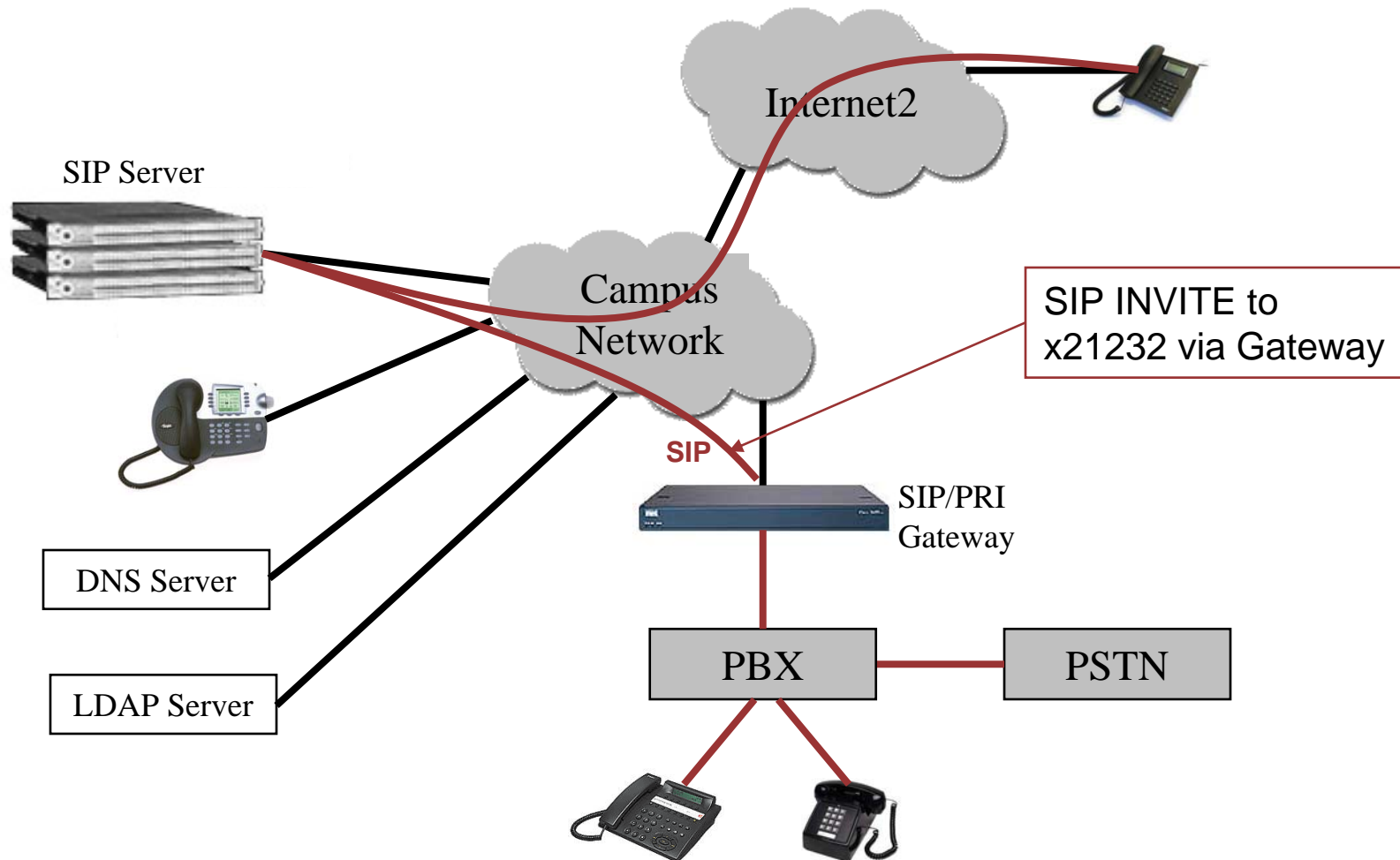
# SIP INVITE



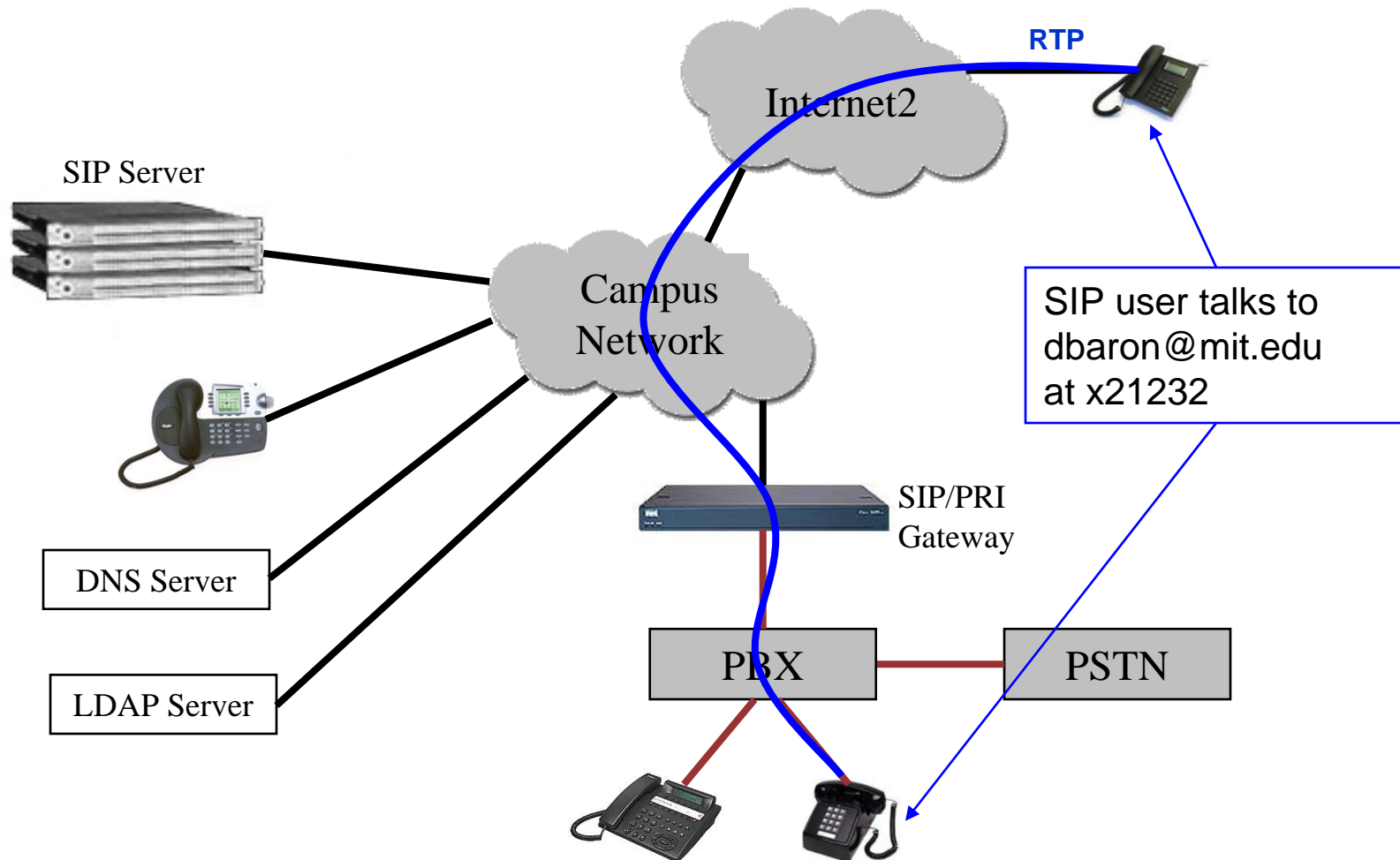
# LDAP Lookup



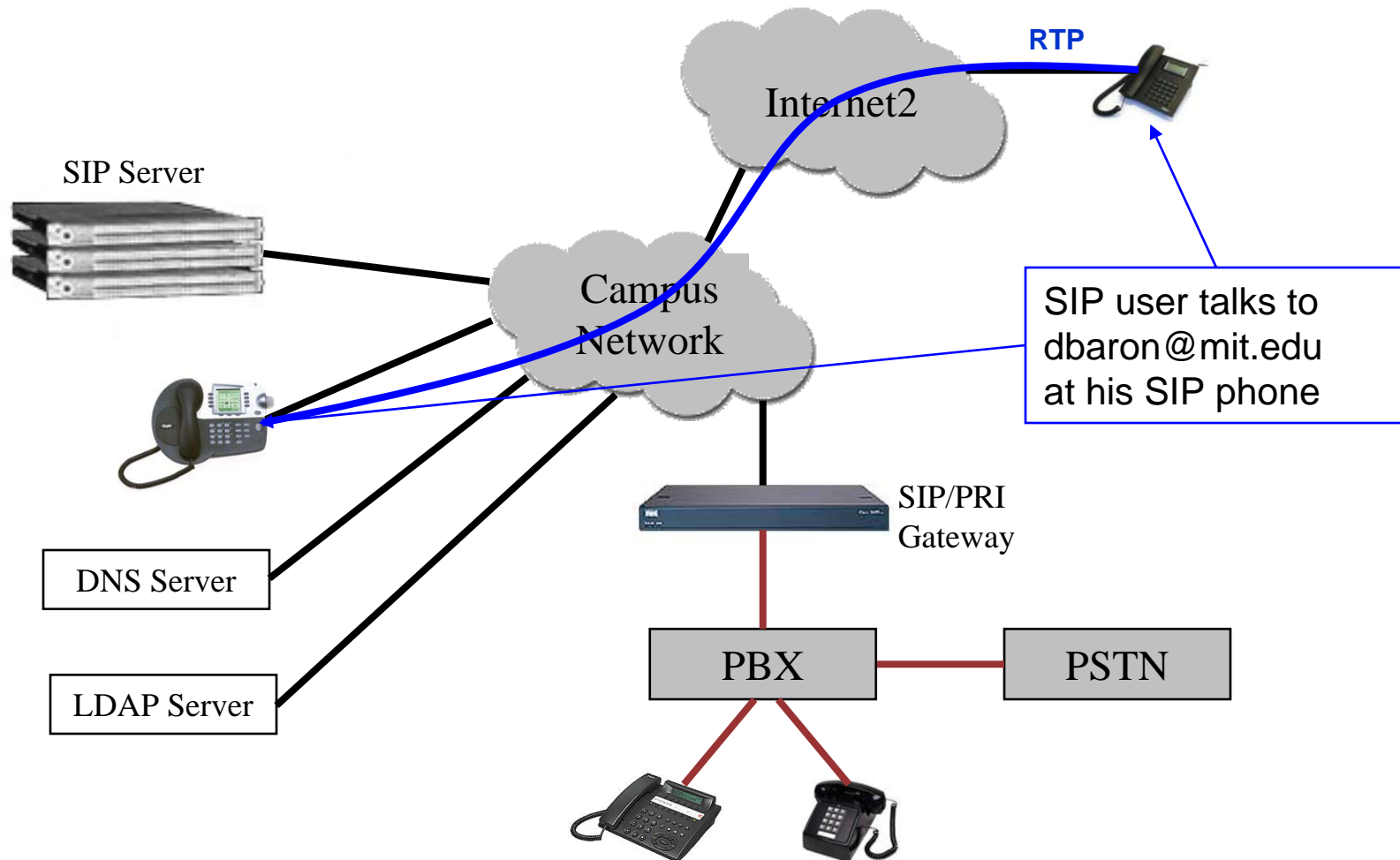
# Call Sent to PBX Gateway



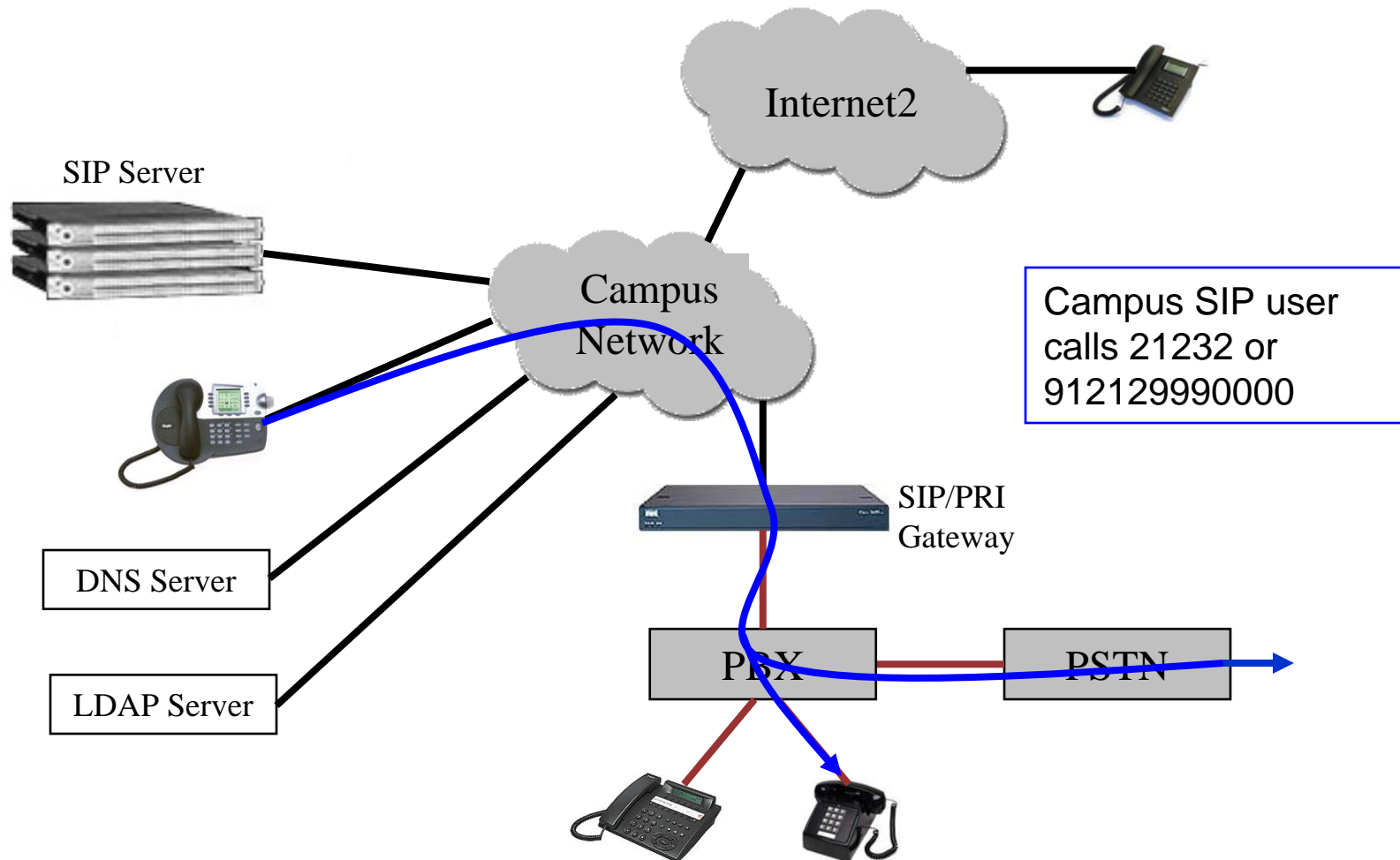
# Media Stream via Gateway to PBX



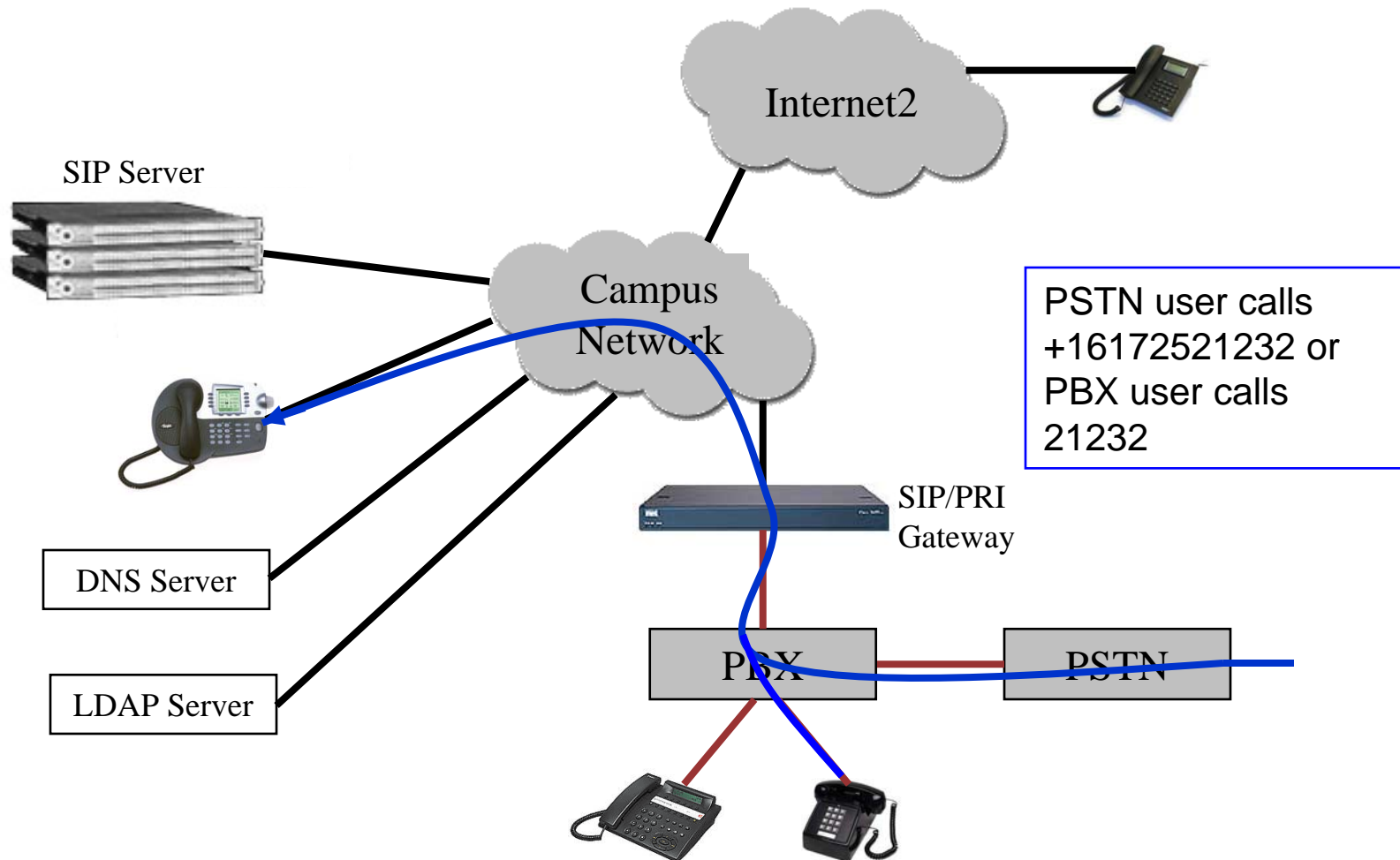
# Sip to SIP Calling



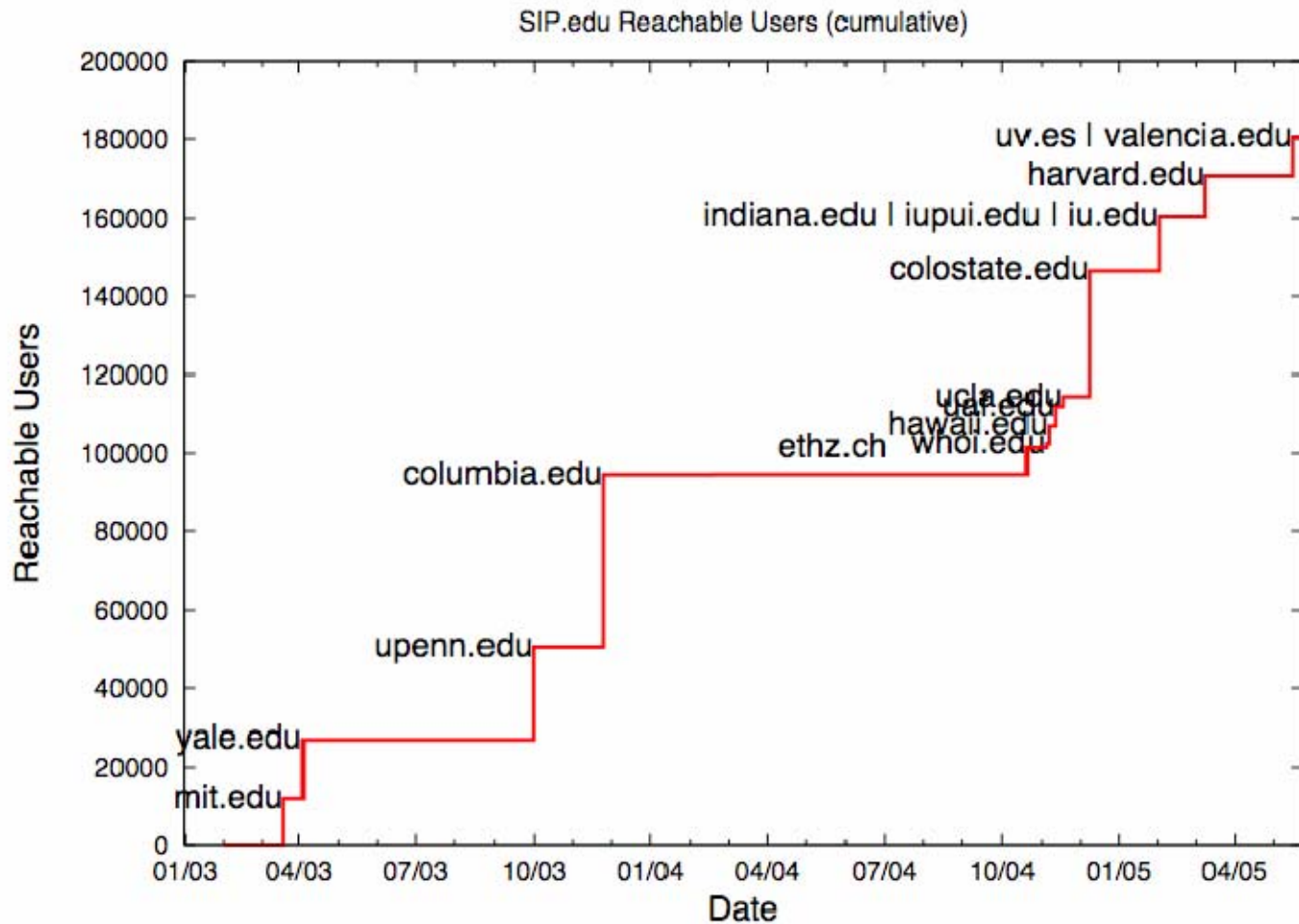
# SIP to PBX and PSTN Calling



# PBX and PSTN to SIP Calling



# SIP.edu Reachable Users



# SIP.edu Quotes

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“This project was initiated by the need to provide reliable, IP based phones for the Toolik Lake research station located north of the Brooks Range.” *University of Alaska Fairbanks*

“sipETH: Internet Telefonie for the ETH Zurich: This project has been inspired by the Internet2 SIP.edu initiative. During the exploration process many new ideas have led to a new vision for our project.” *ETH Zurich*

“Our SIP.edu infrastructure has allowed us to utilizing our Internet2 connections to reestablish the telephone tie lines connecting out two institutions.” *MIT and WHOI*





**SIP.edu – Just do it!**

**Questions?**

