draft-bryan-sipping-p2p-usecases-00

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Use Cases

When is P2P SIP useful?

How can it be used?

RT IP communication
- VoIP
- IM
- Presence

Some require P2P, some could be CS or P2P

Scenarios Considered

(portions may overlap)

Global Internet Environment

- Large scope and many administrative domains

Private networks

- Corporate to small enterprise

Security Demanding Environments

- Privacy and access considerations

Limited Connectivity

- Ad-hoc or disaster response

Global VoIP Networks

Commercial

- May connect with PSTN
- Centralized authentication
- Provide super-peer services

Open

- Maybe no central auth
- Homesites may provide identity
- Doesn't connect to PSTN

Reduced infrastructure important for commercial and open networks

Challenge is maintaining reliability and security with/without minimal authorities

Need to work within existing infrastructure (NATs, firewalls, etc)

Scale Unimportant

Global Network

- Infrastructure and administration cost savings
- Works with central authority or without

Scales Down

Small Company

- VoIP without cost/training of central IP PBX
- PSTN access provided through regular node
- Scale back up as company grows

Private: Failover and Redundant Proxies

A medium sized company may want a central proxy, but rely on P2P when proxy fails or during upgrades.

Larger companies or service providers want redundant proxies, such as used by sip-outbound.

One possible organization for these proxies is to internally use P2P

Could allow simple configuration of proxy farms

Private: Multi-site Organization

Many large companies and organizations have
multiple locations

- Independent networks
- Behind NATs
- Not always single VPN

Provide connectivity without regard to location
across organization or NAT behavior.

Not Just Voice: Content Sharing for CE

Consumer electronics increasingly connected

- Bluetooth phone, headset, laptop, PDA, Nokia 770

Information sharing beyond personal space

- Different people's cameras
- Family members across country

Not VoIP, but global presence provides interaction and sharing wherever network connectivity is available

Security: Impeded Access

Not all networks offer network neutrality
- "Triple play" means data provider views other content providers as competitors

Access to specific service providers sometimes blocked for competition

Access to ports blocked for "security"

Difficult to impede access to decentralized system that doesn't rely on fixed servers or ports

Security: Anonymous Communication

Many reasons:

- Commercial
- Political persecution
- Violence

History has shown anonymous communication is a useful (sometimes abused) mechanism to force change

Various levels of anonymity:

- Repeatable identity without a known location
- Single use, untraceable identity

Again, impeding access to a P2P communications system without blocking all Internet access is difficult

Security: Small Organizations

Many companies and organizations

- Want private communications
- Regardless of members' locations

Relying on external provider unacceptable

Skill to maintain own servers not available

P2P allows minimal configuration to achieve
secure communications for small companies.

Limited Connectivity

Group of IETF people at a bar want to connect 770s

- No prior configuration
- No authority setup
- No Internet connectivity

Developing world

- Internet/PSTN only available sporadically

Provide useful connectivity:

- Globally when network available
- Locally when access restricted

Scales easily

Integrate with available communication infrastructure

Limited Connectivity: First Responder

Katrina provided example

- Unable to anticipate what networks will be available
- Organizations with separate communication systems may suddenly need to communicate

In absence of infrastructure, provide useful connectivity between nodes in area using what routing schemes are available to set up P2P network.

Most first responders going all-digital already.

Summary

P2P SIP useful for:

- Global scale networks
- Large companies
- Small companies
- Meeting at a conference
- Family across the country
- Few people at a bar

Summary

P2P SIP can/should/must provide:

- Easy configuration
- Opportunity for anonymity
- Ability to confirm identity of contact
- Privacy
- Fault tolerance
- Best-effort communications

Compatibility with existing base of SIP devices