Requirements Structure
IEPREP WG

General
Requirements

IP Telephony
Requirements

SIP
Resource
Header

*Future
Requirements?*

SMTP

IAA

**IP Telephony
Framework**

*Informational
Mapping*

MLPP

*HPC
(NS/EP)*

H.460.4
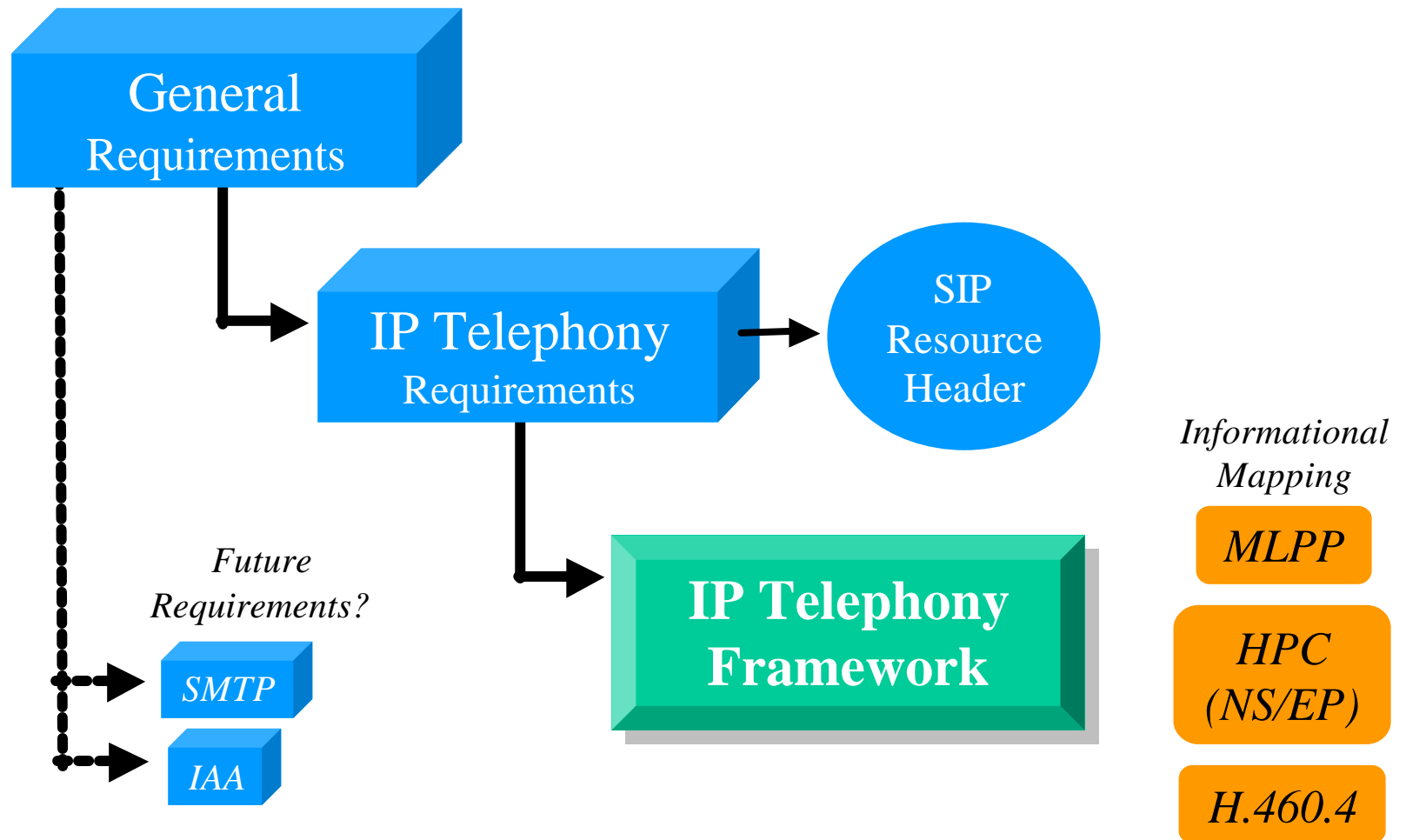
General Requirements

o Requirement Areas

- Signaling
- Labels
- Policy
- Probability
- Authorization
- Integrity
- Authentication
- Confidentiality

o Issues

- Accounting
- Admission Control
- Digital Signatures

IP Telephony Requirements

o Requirements

- Label support for signaling
- Extensible labels
- Mapping of labels
- Accounting

o Issues

- Alternate paths

Network Perspectives
(Priority Treatment)

o Near Term

- *Intra*-domain
- Inter-domain: access links
- Inter-domain: between ISPs

o Mid-Term

- Over-lay networks

*Intra*Domain
(near term)

1. Over-provisioned links
2. VPN
3. MPLS labeled paths
4. RSVP/Int-serv
   - Isolated segment within a domain

o *Note: 2 through 4 **may** be done at leaf ISP, or large enterprise networks. Tier-1 networks rely on over-provisioning*

InterDomain
(near term)

o **Access Links**

- Diff-serv
  - AF for signaling
  - EF for VoIP/video
  - *Potential* use of AF for emergency labeled data
- WFQ/CBQ

o **Inter-ISP**

- Overprovisioning at Tier-1
- Class-based WFQ at Tier-2 & 3
  - Aggregates of VoIP or video

o *Note: in either case, BGP will **not** be augmented to support priority routing*

Beyond Network Layer

o Gateways

- Alternate gateways via TRIP
- Mapping of labels from ITU, IETF, T1

o Forward Error Correction (FEC)

- Duplicate packets
  - e.g., UCL RAT audio tool using different codecs
- Reconstruction packets
- Interleaving of packets (1,3,2,4,5…)

Beyond Network Layer (cont.)

o Distributed Content Architecture
  - e.g., Akamai

Future Efforts

o **Increase of Multi-homed networks**
- Operational issue/decision

o **Overlay Networks**

o **New Service models**
- Policy-based degraded service
  - Help Bridge wireless networks such as Land Mobile Radio
- New diff-serv code points representing new forwarding models

Future Efforts
(cont.)

o IPv6

- Its **_not_** the silver bullet
    - IPv4 is the installed base and must be primary focus
    - eg, diff-serv code points field is same for IPv4 and IP6
- Has great potential for maintaining end-to-end model using portable devices (e.g., soft-phones)

Challenges

o Routing

o Firewalls, NATs, PATs

o Educating ISPs and users

- Understanding what is being asked, what can be done, and what is available