

Part II: Internet Standards

- The role of standards
 - benefits and drawbacks
- Organizations involved
 - similarities and differences
- The standards process
 - help evaluating claims of “standard”

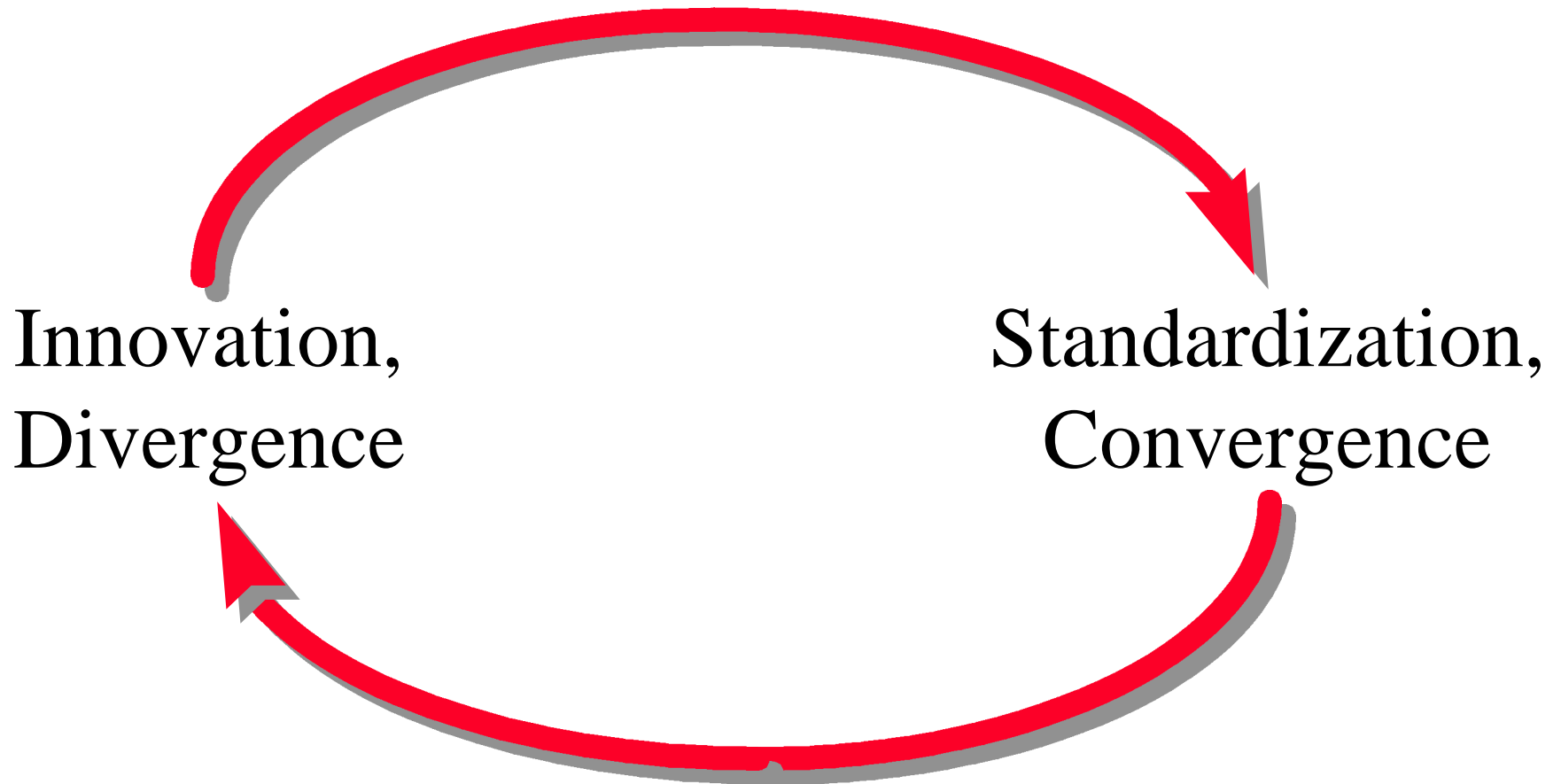
Internet Standards

- A technical definition of a network protocol, a protocol element, a data format
- Specified in sufficient detail that it can be implemented
- Supported by industry and users
- (Often) openly available
- (Often) published by a standards body

Importance of standards

- Permanence
 - Stability over time and version
- Interoperability
 - different vendors, platforms, contexts
- Avoiding the “*tragedy of the common*”
 - *Common resource: the Internet*
 - *Individual access: offering products and services*
 - *Common good: Internet interoperability*
 - *Use: “use my software”*
 - *Tragedy: everyone has proprietary extensions*

Formal Standards *follow* Innovation



Who creates Internet standards?

- Standards organizations
- Consortia
- Companies
- Individuals



Welcome to ISO Online

International Organization for Standardization



Internet Engineering Task Force

- Defines standards for the Internet
- Different rules, structure than most other standards organizations

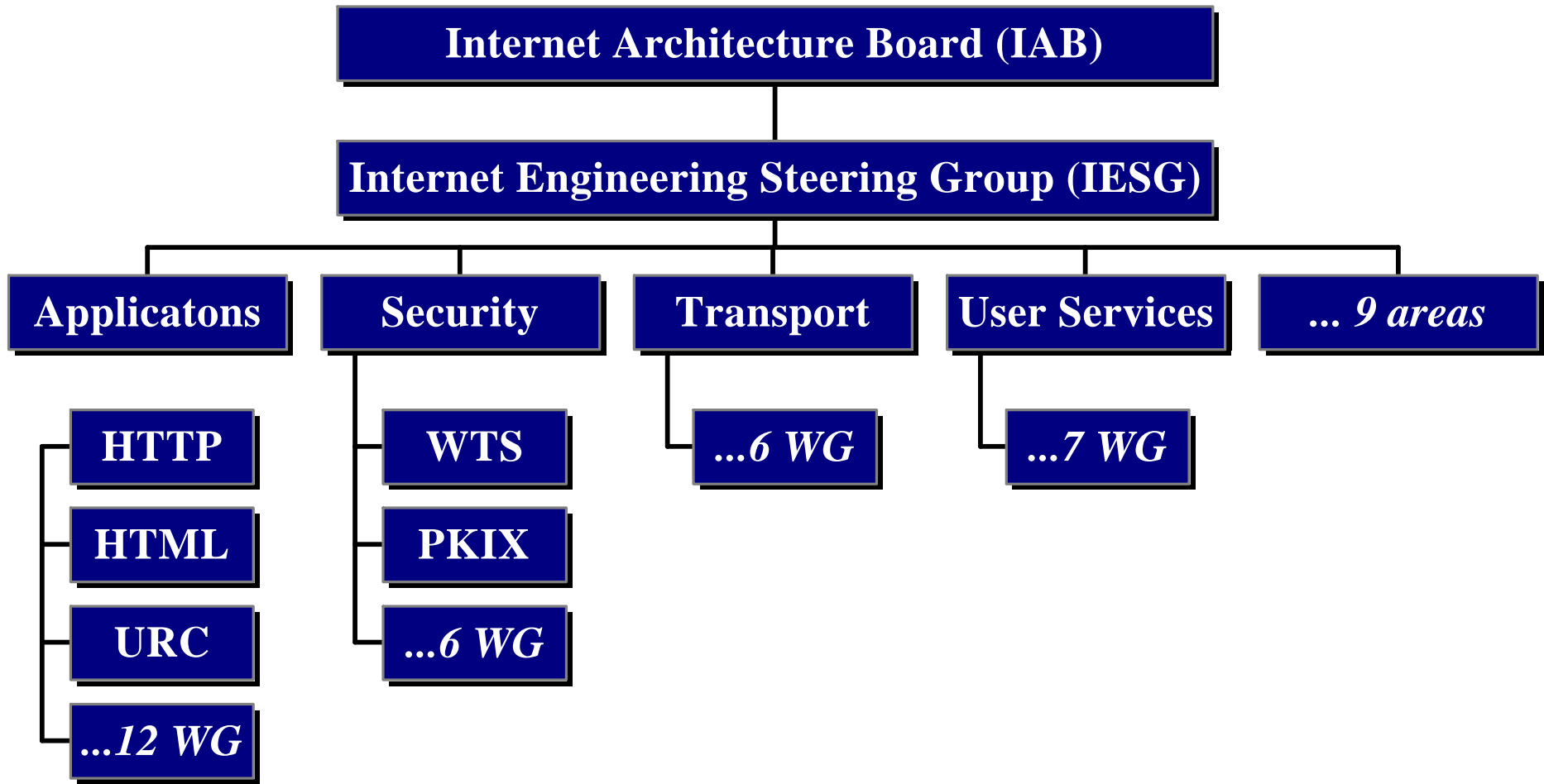


Internet Society

- Non-governmental organization created to coordinate Internet activities
- Umbrella organization for IETF



IETF structure



IETF Working Groups

- Open organizations
 - no formal membership, all volunteer
- Most work happens via email
 - may meet at IETF meetings (3 a year)
- Small focused efforts
 - published goals and milestones
- No formal voting
 - “Rough consensus and running code”

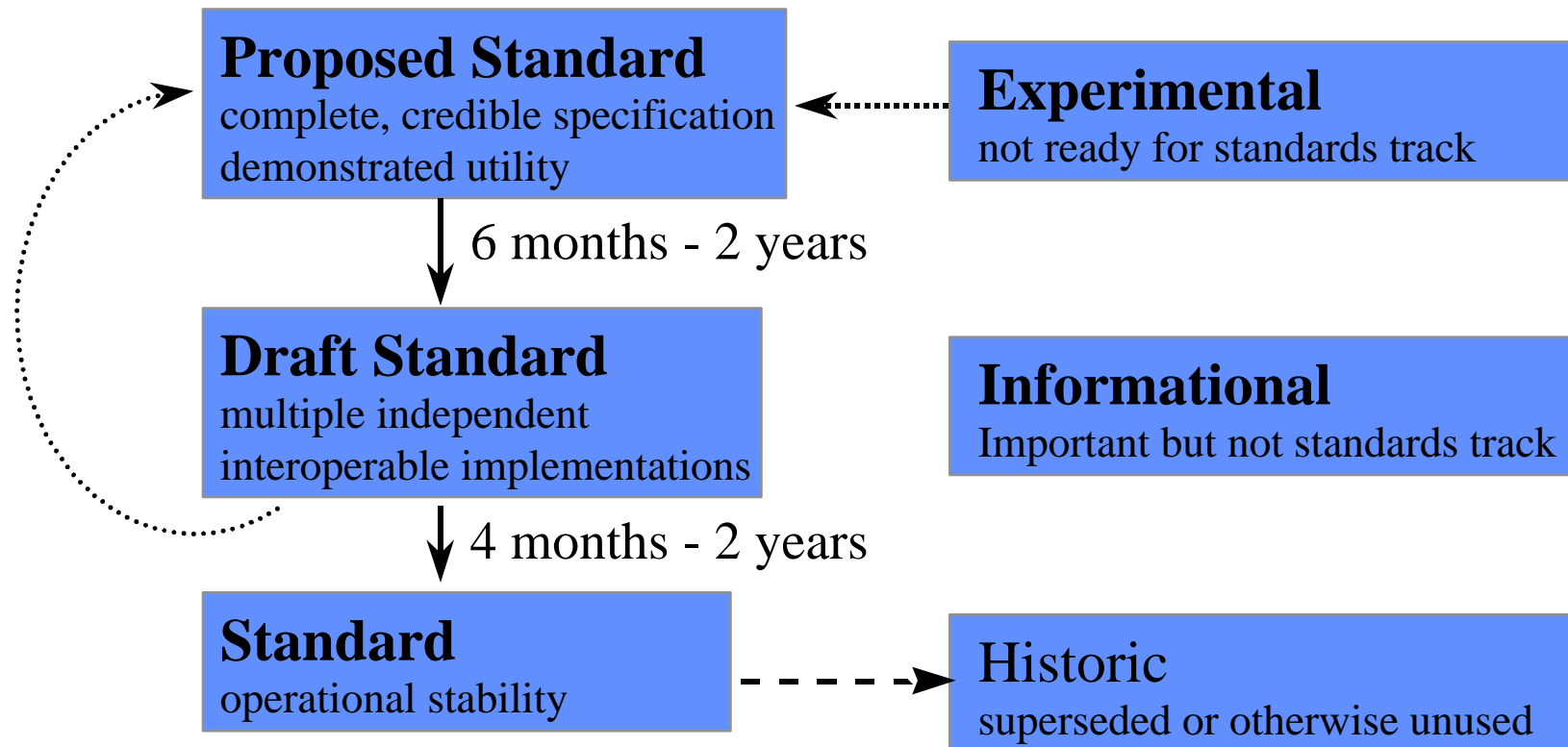
IETF Documents

- Internet-Drafts
 - works in progress, no formal status
 - deleted after 6 months
- RFCs (*Request For Comments*)
 - Archived series of documents
 - RFC 1796: “Not all RFCs are Standards”

IETF RFC Categories and Process

Standards Track

Other Categories



World Wide Web Consortium

- Members are vendors and user organizations
- Paid (and volunteer) staff
- *Develops* web-related standards
- Hosts workshops, working groups



W3C Process

- Advisory Committee sets priorities
- New work requires member approval
- Exploratory workshops spawn working groups
- Working groups for members
 - outside experts may be invited

W3C Document Status

- **Notes**
 - no official status
 - may be statement of opinion, policy, obsolete
- **Submission**
 - Contribution from member
 - may or may not be basis for future work
- **Working Draft**
 - interim document of working group
- **Recommendation**
 - stable document approved by members
 - short review period as “proposed recommendation”

W3C and IETF relationship

- Narrow overlap:
 - W3C focus on Web
 - IETF focus on Internet protocols
- *W3C researches and develops* protocols
- *IETF reviews and resolves* standards
- Coordination in overlap
 - W3C participates in IETF

Other groups developing Internet standards

- Consortia, vendor groups, trade groups
 - ECMA (formerly European Computer Manufacturer's Association)
 - CommerceNet
 - Internet Messaging Consortium



- ANSI, ISO, ITU

Summary: Internet standards

- Increasing Number of Organizations
 - Common goal: improve the value
 - Many opportunities to participate
 - Common element: wide review and consensus
- Evolution along many fronts
 - Web, Mail, commerce, devices
 - some overlap
- Standards come after innovation
 - local market forces conterritail

Future of Internet Standards

- Innovation still leads, standards will follow
 - *This will not end*
- Organizations adapt too
 - *IETF, W3C change*
- Interoperability vs. features
 - *if we're careful, we can have both*
- Avoiding the tragedy of the commons
 - *local greed over global optimization*