Federal Internet Umbrella Security Plan

Overview

Federal Networking Council
Security Working Group

1994.11-30

National Performance Review

The National Performance Review (NPR) focused on how government should work, not on what it should do. The NPR teams examined every cabinet department and 10 agencies.

The report, "From Red Tape to Results: Creating a Government That Works Better and Costs Less," represents the beginning of what will be an ongoing commitment to change. It includes actions that should be taken now, by Executive Order of the President or by the cabinet secretaries and agency heads; recommendations for congressional action; and a vision for the future, for long-term changes we must begin now. It reflects a government-wide determination to "reinvent" government--to create a government that works better and costs less. If implemented, these recommendations will revolutionize the way the federal government does business. They will reduce waste, eliminate obsolete functions, improve services to taxpayers and create a smaller but more productive government.

[From the NPR Report]

Federal Networking Council

In support of the High Performance Computing, Communications, and Information Technology (HPCCIT) subcommittee, the Federal Networking Council (FNC) is chartered by the National Science Foundation to establish an effective interagency forum and long-term strategy to oversee the operation and evolution of the Federal Interagency Internet Program in support of research and education. This program is an element of the High Performance Computing and Communications Program (HPCC). In addition to HPCC, the FNC will coordinate activities with other government programs such as the National Information Infrastructure Initiative (NII), which incorporates related network content and programs.

[From the FNC Charter]

Security Working Group

The Security Working Group (SWG) is responsible for addressing network security technology, management, and administration issues related to maintaining and improving the availability, integrity, and confidentiality of Interagency Interim NREN resources. The SWG will develop, coordinate, and propose to the FNC a security policy for use of the Interagency Interim NREN. It will also review security requirements of the evolving NREN and propose technical developments, operational guidelines, and administrative procedures needed to meet them. It will prepare input to the FNC, as needed, on security related matters. The SWG will work closely with other organizations developing or defining security policies, standards, services, and mechanisms in fulfilling these duties.

[From "The National Research and Education Network Program - A Report to Congress"]

Context, Process, Products, Impact

The National Performance Review,
Information Technology Report
Security Issues

The Federal Networking Council and its
Security Working Group

Federal Internet Umbrella Security Plan

Improving Internet Security

The National Performance Review, Information Technology Security Issues

Reengineering Through Information Technology

NPR.IT

Accompanying Report of the National Performance Review

NPR.IT10:

Develop Systems and Mechanisms to Ensure Privacy and Security

Action Item

10. Develop a comprehensive Internet security plan.

Reengineering Through Information Technology

NPR.IT

Strengthen Leadership in Information Technology

Implement Electronic Government

Establish Support Mechanisms for Electronic Government

••• Strengthen Leadership in Information Technology

IT01: Provide Clear, Strong Leadership to Integrate Information Technology into the Business of Government

Making the Vision a Reality
- **Creating a National Vision**
- **Improving Federal IT Practices**

Need for Change

Actions

1. Plan for effective use of information technology throughout government.
2. Coordinate and oversee implementations of information technology plans.

••• Implement Electronic Government

IT02: Implement Nationwide, Integrated Electronic Benefit Transfer

IT03: Develop Integrated Electronic Access to Government Information and Services

IT04: Establish a National Law Enforcement/Public Safety Network

IT05: Provide Intergovernmental Tax Filing, Reporting, and Payments Processing

IT06: Establish an International Trade Data System

IT07: Create a National Environmental Data Index

IT08: Plan, Demonstrate, and Provide Governmentwide Electronic Mail

••• Establish Support Mechanisms for Electronic Government

IT09: Improve Government's Information Infrastructure

IT10: Develop Systems and Mechanisms to Ensure Privacy and Security •••

IT11: Improve Methods of Information Technology Acquistion

IT12: Provide Incentives for Innovation

IT13: Provide Training and Technical Assistance in Information Technology to Federal Employees

NPR.IT10:

Develop Systems and Mechanisms to Ensure Privacy and Security

1. Establish a Privacy Organization
2. Establish uniform privacy protection practices and generally acceptable implementation methods for these practices.
3. Develop standard encryption capabilities and digital signatures for sensitive unclassified data.
4. Develop generally accepted principles and practices for information security.
5. Develop a national crisis response clearinghouse.
6. Emphasize the need for information security in sensitive unclassified systems.
7. Reevaluate security practices related to national security data.
8. Foster the industry-government partnership for improving services and security in public telecommunications.
9. Implement the National Industrial Security Program.
10. Develop a comprehensive Internet security plan. •••
11. Coordinate security research and development.

10. Develop a comprehensive Internet security plan.

The existing interagency team, the Federal Networking Council, chaired by the National Science Foundation (NSF), should, in consultation with NIST and OMB, develop and promulgate a Federal Internet Umbrella Security Plan, by November 1994, for interconnecting the federal IT community with appropriate state, local, commercial, public and private, and foreign government activities. Such a global architecture should allow for security differences between networks. Use of layered protocol standards and techniques can be employed with a range or set of security service standards with appropriate gateway protection devices so that small restricted communities and large open communities can safely interoperate. The security architecture should identify as a minimum, the grades of services offered, how each is implemented and assured, how interconnections between networks should be made, and what can be done for those users not adequately served by any agreed-upon standard grades of service.

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And [in our opinion]

... should generalize to the overall Internet and beyond ...

to The Net

The Federal Networking Council and its Security Working Group: Main Activities

FNC established under NSF with an FNC Advisory Committee

FNC SWG Restructured at FNC Exec meeting Cochaired by ARPA and NIST	1994.3-28
Security Panel at FNC Advisory Committee	1994.4-5
Meetings to Develop a Framework	
Brief FNC Advisory Committee	1994.10-18
Brief OMB Security Issues Forum	1994.12-1
Initiate Briefings to Community Sectors	1994.12-5

Scope

The Internet

The Federal Government

- User through GITS and other activities
- Invests in its future through R&D
- Model for doing it!

Unclassified through Sensitive Unclassified

Interoperate with National Security Establishment

The Internet as

- an experimental prototype community of tomorrow
- a federation of cooperating enterprises
- a pilot of the Global Net

Federal Internet Umbrella Security Plan

1. Introduction

2. Scope

3. Problem

4. Vision

5. Realization

Point of View

The Open Internet

Protect What You Connect

Proceed with a Sense of Urgency

Comprehensive Systems Approach

Establish a Continuous Improvement Process

Build on and extend the dual use Technology Base

Couple to existing Open Internet Community Processes

Trends, Challenges, Opportunities

Geometric advance of underlying technologies

Future of 100 Millions to Billions of Users

Relationship of the People to the Technology

From "The Internet and Beyond"
to "Beyond the Internet"
to just ... "The Net"

Every one and thing may be connected to The Net.

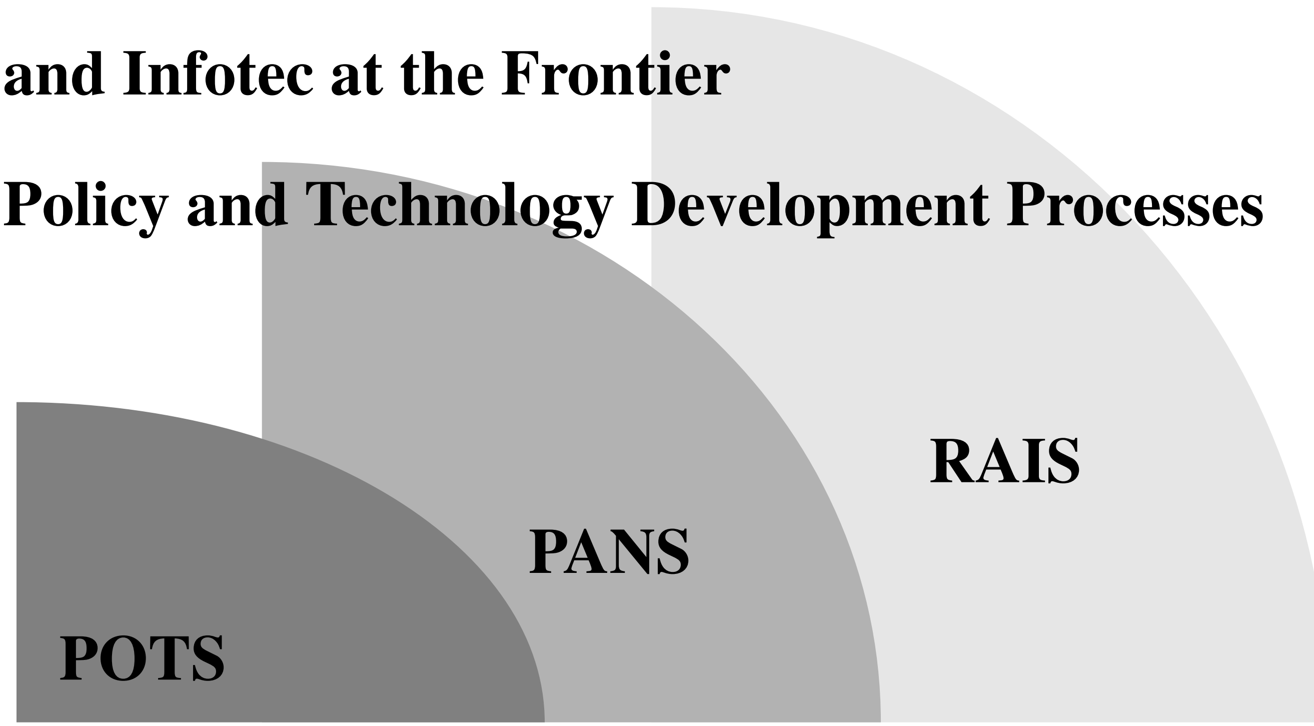
Maturity Model

Policy should be appropriate to maturity

Plain Old Telecom Service,
Pretty Advanced Network Service,
Really Advanced Information Systems

Infosec and Infotec at the Frontier

Couple Policy and Technology Development Processes



Enclave Concept

Integrating theme for security on The Net

The collection of protected resources

Explicit definition of

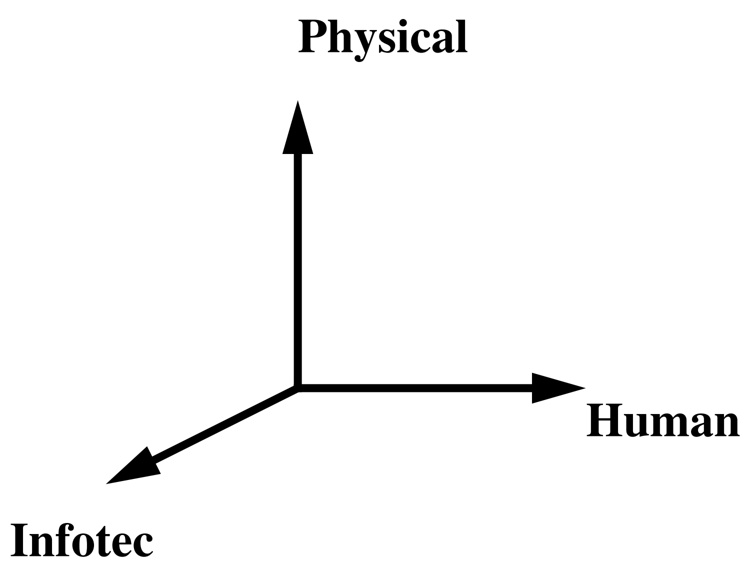
- System Boundary
- Flow Across Boundary
- Interoperation with
  - other Enclaves on The Net
  - end others on The Net

Enclave Dimensions

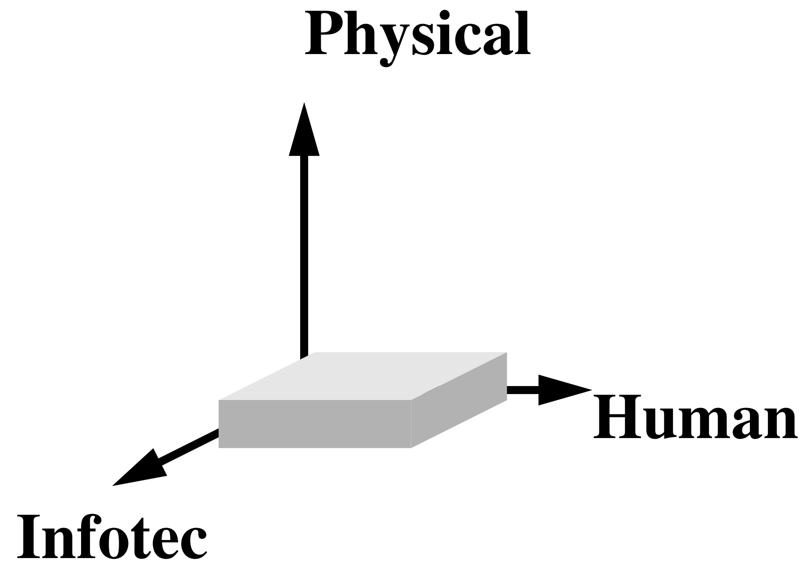
Physical

Infotec

Human



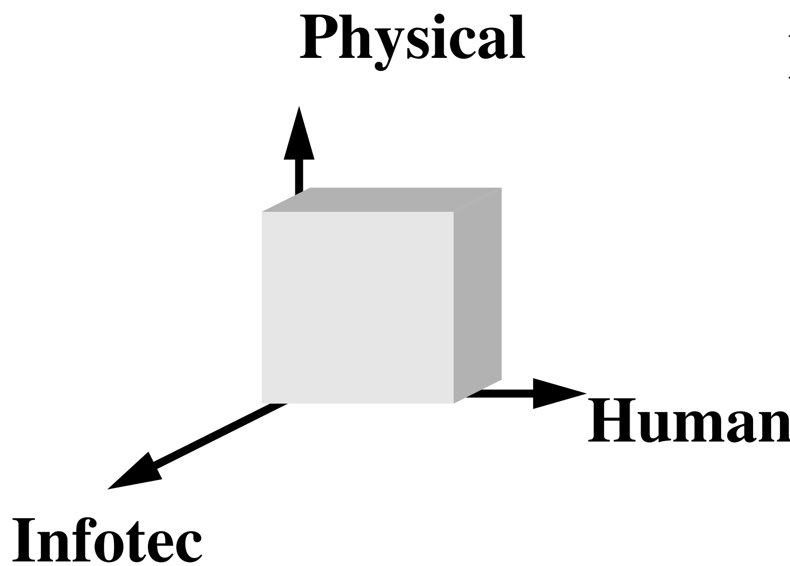
Enclave transition from Physically-based to Infotechnology-based



Infotec-based Enclave

Infotec constraints inside the protected resources.

Horizontal Structure



Physical-based Enclave

Physical constraints outside the protected resources.

Vertical Structure

Enclave Progression

from coarse to fine grain

from static to dynamic structures

from homogeneous to heterogeneous operations

from wizard to end user administration

... towards interoperable plug and safe play systems.

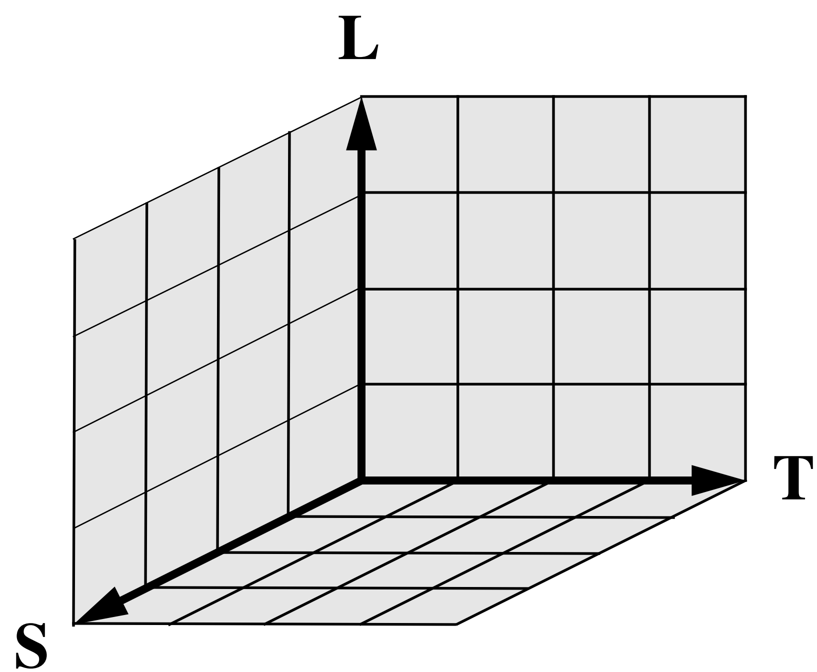
Improving Internet Security

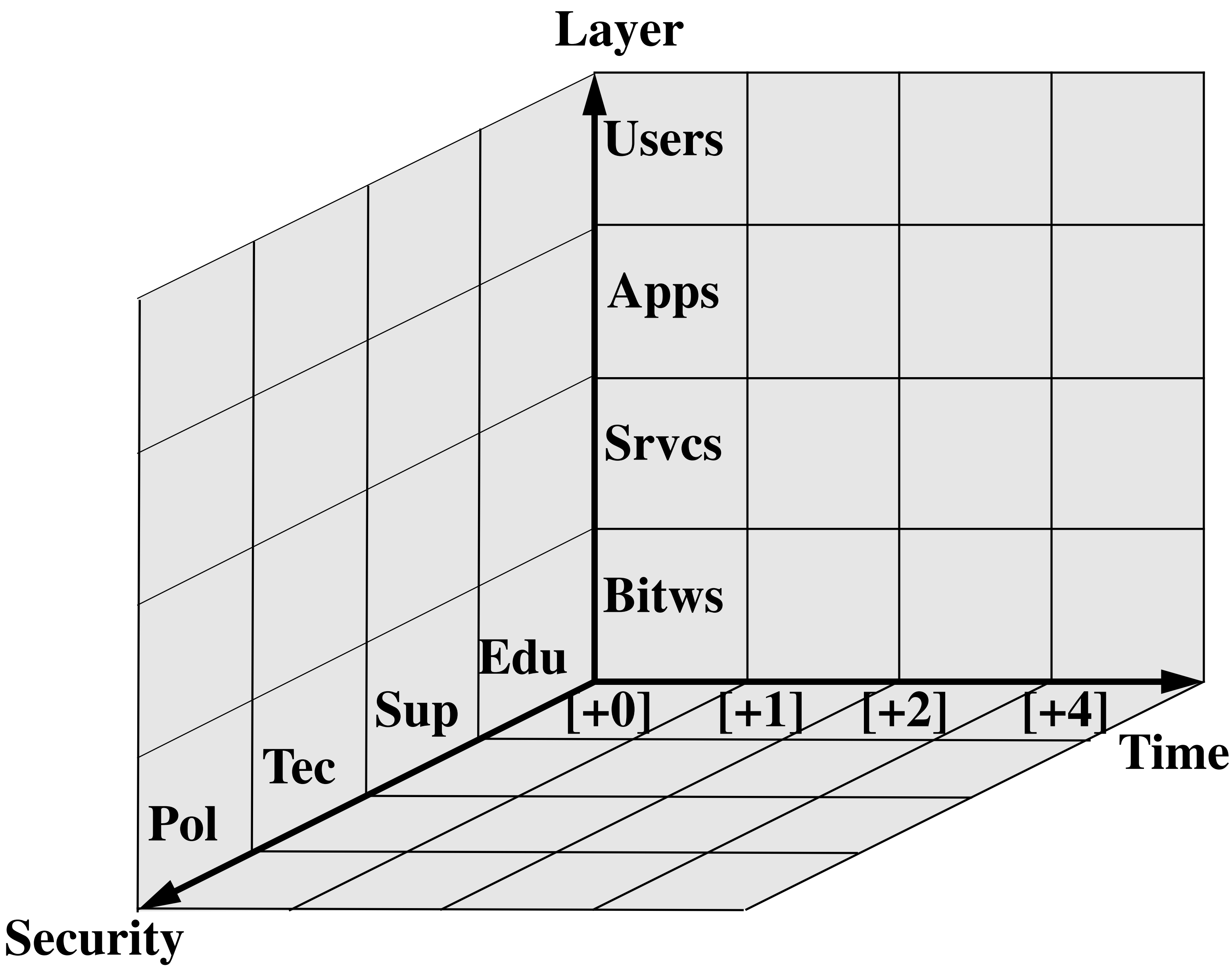
System Dimensions

Security

Layer

Time




Layer
Users
Apps
Srvcs
Bitws
Edu
Sup
Tec
Pol
[+0]
[+1]
[+2]
[+4]
Time
Security

Examples of Items in the Framework

- One time passwords
- Firewalls
- Publication Servers
- Client Server Authentication
- Distributed Authentication
- Common Cryptosystem API
- The RFCs
- ... and many others

For each Framework Item

Headline (the What)

Caption (of the Capability)

Examples (things that do this)

Location (where it fits in the framework with initial time)

Aspects (in each subframe at initial time)

Characterization (in initial time frame)

Limitations (in the initial time frame)

Trajectory (where it is going over time beyond limitations)

Progressive process: expose, revise, extend, apply

Do the internal homework

Contact community leaders

Brief community meetings

Produce publishable DRAFT Informational RFC

Establish comment process with each community

Guide the process

Enable vision to progress toward realization

Kinds of feedback needed

Framework revisions and extensions.

Suggestions for the *overall process*.

Identification of *items to place in the framework*.

Identification of *barriers to progress*.

Suggestions for *who should be involved*.

Suggestions for *who should do what*.

Suggestions for *how to realize each what*.