



Electronic-Approval Project

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***Information
Technology
Laboratory***

NIST

Project Goals

- Provide the infrastructure to conduct routine business at NIST electronically
 - Pilot Travel Mngr. w/E-Signature & PKI
 - Quickly pilot E-Approval & PKI w/E-Mail
 - Automate 4 low-risk/high-volume actions
 - Rollout infrastructure & train NIST staff
- Use lessons learned to plan the automation of all NIST business actions

Why do this?

- Congress and DoC want e-business!
 - Government Paperwork Elimination Act
 - Secretary Daley's All-Digital Dept. by 2002
- Automation & Reengineering will improve effectiveness
- Technology demonstration is part of our mission



Impact of Application Specific Systems

- Several are in-place or coming soon
 - DoC CSTARs acquisition system, Oct. 99
 - DoC human resources system, in 2000
 - DoC/NIST property system, May 98
 - NIST Travel Manager Plus, e-sign. July 99
 - NIST Maximo work order system, in-place
 - NIST space management system, in-place
 - EEEL calibrations system, NIST-wide Aug. 99
- Each differs in e-approval capabilities
- OUs need one standard “look & feel”

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Approach

- Use COTS solution set & NIST Intranet
 - Digital Signature, Public Key Infrastructure (PKI), & Certificate Authority (CA)
 - Workflow for auto routing & tracking
 - Electronic Forms solution
- Do quick pilots using e-mail
- Model four OU/Admin business actions
- Use appropriate contracting vehicle to
 - acquire integrated solution set & tech support
 - Train users & rollout infrastructure

Four Low-Risk/High-Volume Actions selected for Automation

Approvals of:

1. Bankcard & Small Purchase Requests
2. Work Orders
3. Time & Attendance
4. Local Travel Reimbursement

NIST's IT Environment

- NIST does research in Measurements & Standards
 - Business actions are a support function--not a primary mission function
 - Two campuses linked by T1 service
 - Gaithersburg with > 2,500 employees
 - Boulder with < 500 employees
- IT Environment
 - Unix and NT servers on fiber-optic backbone
 - Employees have Intranet remote access via modem pool
 - Supported administrative systems--PC's running Windows 95/NT, MS Office 97 and higher; Synchronize calendaring; Eudora e-mail, & Netscape
 - Researchers free to use unsupported IT (Unix, SGI, Mac)
 - Very few groupware users--Lotus Notes or MS Exchange

Minimum Requirements

- A secure standards-based integrated solution set including digital-signature/PKI/CA (w/revocation list), workflow, & e-forms that meets GAO criteria
- Ability to implement one “look & feel”
- E-mail (S/MIME), Internet, & browser capable
- Function on clients running Windows 95 and higher
- User friendly business rule coding
- On-demand tracking & charting reports
- Y2K Compliant

Minimum Requirements (cont.)

- Ability to manage work folders/packages containing e-forms & attached supporting documents
- Automatic serial routing for multiple approvals, w/delegation lists, & in-process rerouting
- Ability to sign groups of fields, all data in a form together with the form itself, files in a folder, and the folder
- Indicate that a signature hasn't been validated when the file is viewed or printed using an alternate application, e.g., WORD, a PDF viewer, etc.
- Not preclude the use of 3rd-party e-forms

Desired Features

- Certificates compatible with Netscape LDAP Ver3 or higher
- Ability to cross-certify CAs using RFC 2510 protocol
- Compatibility with Unix clients
- GUI for business rule coding
- Ability to sign multiple file types, i.e., e-forms, PDF, Word, and ability to expand types
- Provide an external label indicating a signed file
- Compatible with existing and planned NIST systems

Support Requirements

- Software distribution & maintenance support
 - Server-based
 - Auto install on client
- 100 seat pilot support
 - Designer tools technical advise
 - Technical support for NIST's IT support staff
 - Technical support for NIST's data-list support staff

Optional Desired Features

- Biometrics devices and software, e.g., fingerprint sensor, signature capture
- Smart Card technology

Milestones

- Jul 99 - Start Trvl. Mngr. e-sign. pilot
Complete
- Dec 99 - Quick pilot, e-signature using e-mail
- Feb 00 - Quick pilot, PKI using e-mail
- Jun 00 - Contract awarded
- Mar 01 - Tests of four business actions
- Sep 01 - Rollout & NIST staff trained

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Anticipated Pilot Results

- NIST-wide e-approval infrastructure in-place
 - four actions rolled-out for e-approval
 - ability to sign e-mail on Intranet & Internet
 - all NIST staff trained
- Lessons Learned for future expansion
 - business process templates for expansion
 - ready to automate all NIST actions (233 forms)



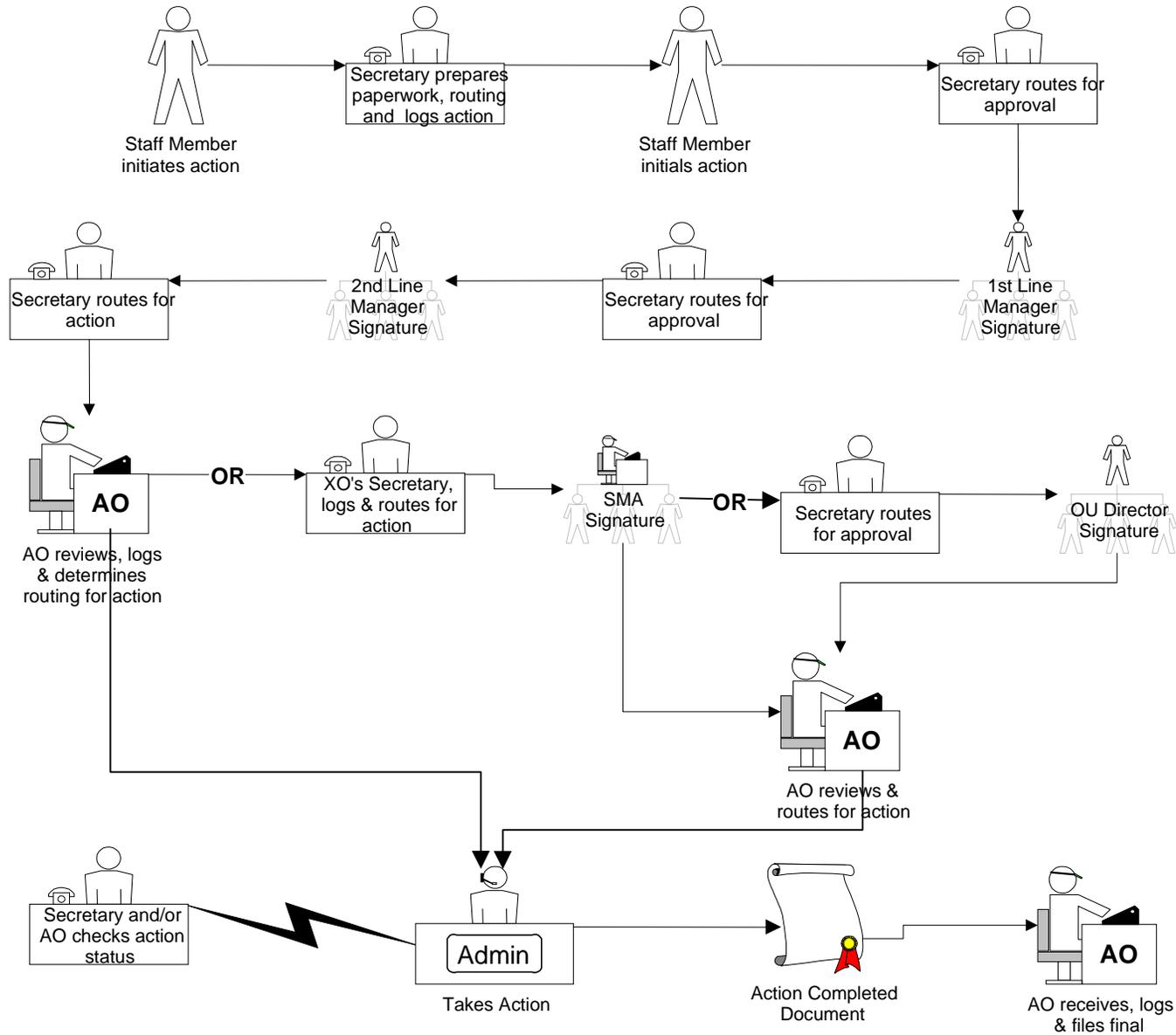
Backup Information

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Typical NIST OU Administrative Action Workflow



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Training Requirements

- Self-guided online tour
- Extensive online general & menu help
- General User training
- Administrator/Manager training
- Data-list Administrator training
- Workflow Administrator training

Business Process/Rules Modeling

- Task Order to support contractor for modeling through Dec 99
- Interview processors in ITL and Admin
 - Secretaries
 - AOs
 - Managers
- Interview other OU(s) for consistency
- Document using Visio & MS Office

Participants & Stakeholders

- Admin/CFO is a critical participant
- Every NIST OU and employee is a stakeholder
 - use IT Planning Support Team (ITSPT) to communicate & coordinate w/OUs
- ITL is managing the project & piloting the automation

What is an Electronic Signature?

- GAO Criteria for Sanctioning -
An Electronic Signature must be:
 1. Unique to the signer
 2. Under the signer's sole control
 3. Capable of being verified
 4. Invalidated if the underlying data has been changed

What is a Digital Signature?

- It is a FIPS standards-based Electronic Signature Technology
- It meets GAO criteria, when properly deployed
- It provides verification, validation & security (hashing & encryption)
- It is scalable using Public Key Infrastructure (PKI) & Certificate Authority (CA)

Why Digital Signature/PKI/CA?

- NIST is a leader in Digital Signature/PKI/CA standards
- NIST should practice what it preaches
- Digital Signature meets GAO criteria
- PKI is scalable for future expansion via the Internet for e-commerce and government-wide business
- D-Signature technology is secure