CGAP

Competitive Grant Applications Project

Approach and Models

01/08/2003

Major Phases

- Phase 1: Standard XML documentation, technology and application receipt flow
- Phase 2: Application Receipt and validation
- Phase 3: Business to Government flow and interchange infrastructure
- Phase 4: Integration with bi-directional communications on IPF, PPF, FSR and potentially other requests

Phase 1: Applications Only

- Analyze and document the e-application standard
- Submit for comments
- Define the technical architecture for
  - Receiving
  - Storing
  - Integrating e-apps into the NIH business flow
- Define the business flows to process e-Apps

Phase 2: Receipt of e-Applications

- Define and implement the transaction receipt and format validation
- Prototype and TEST the receipt function with external partners
- Define downstream impact of e-Applications
- Integrate feedback from comments and tests

Phase 3: Applications and B2B

- Define the business to government interchange
- Define and prototype error and change processing for e-Applications
- Define and prototype acceptance and referral by NIH
- Define and prototype registration, delegation of authority, security
- TEST the Application receipt
- PILOT a limited set of live applications

Phase 4: PPF, IPF integration

- Implement changes in business processes downstream from Receipt and Referral
- Define and implement PPF, IPF bi-directional transactions
- Define a receipt stream for FSR, eSNAP
- Construct the production quality systems for e-Applications
- TEST exchange with external partners
- Prepare for production release of CGAP
- PILOT with gradual increase in volume

Target Time Table

- Phase 1: Now to end of January 03
  - Standard XML documentation, technology and application receipt flow
  - *Inception, tech architecture and analysis*
- Phase 2: February – April 03
  - Application Receipt and validation
  - *Build and test the receipt of XML stream*
- Phase 3: May – July 03
  - Business to Government flow and interchange infrastructure
  - *Complete Design and build B to Gov exchange*
  - *Pilot*
- Phase 4: August – November 03
  - Integration with bi-directional communications on IPF, PPF, FSR and potentially other requests
  - *Build out the integrated system for e-Applications : Test and Gradual introduction*

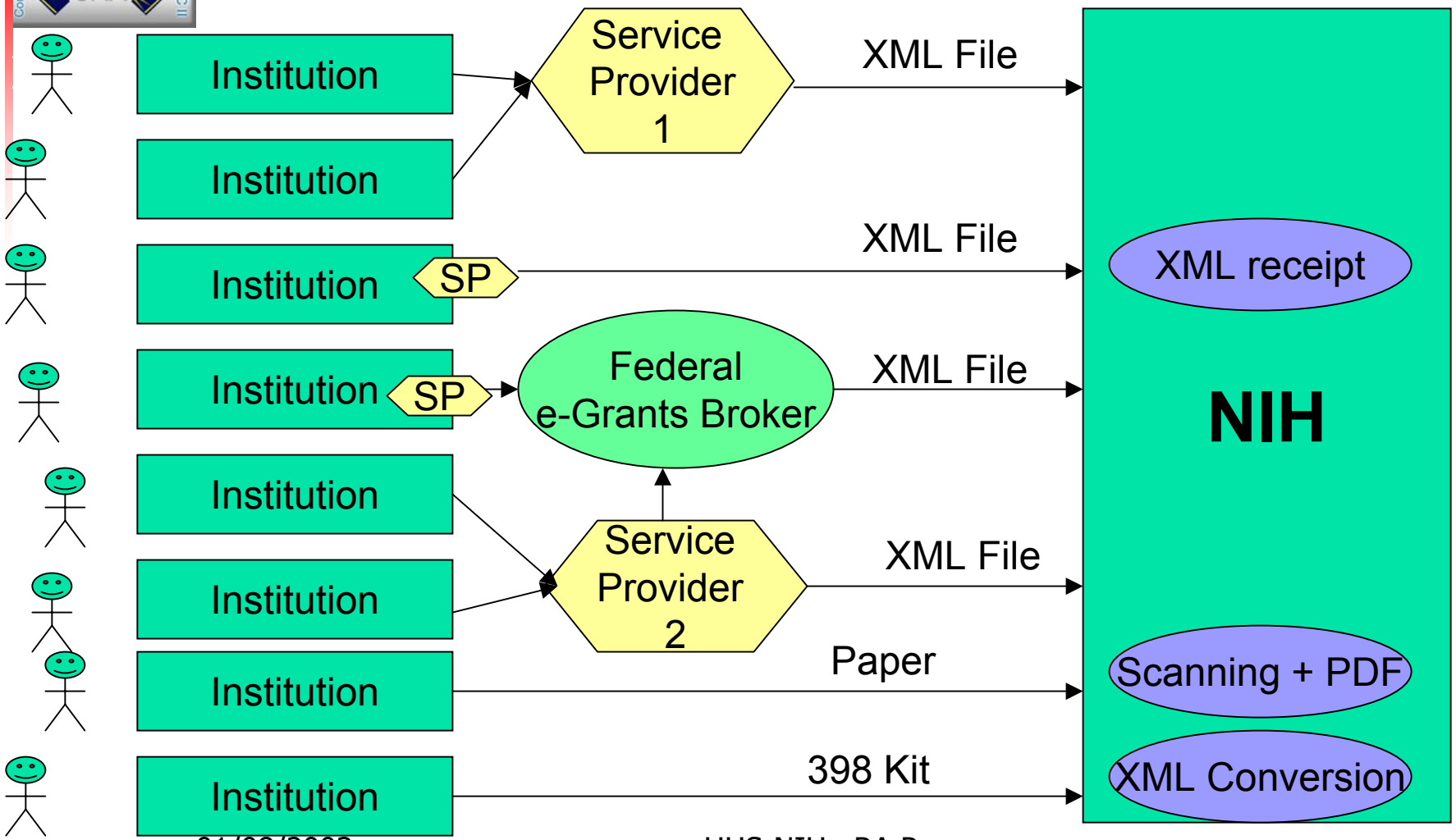
Short term Actions

- More detailed plan under development
- Activated the focus group for e-Receipt and Referral
  - List internal issues to be addressed
- Activated the SBIR listserv and communicate approach
- Technical solution for packaging, transport and storage of XML + Docs started
- Resources assigned
- Test hardware procured, received, to be configured

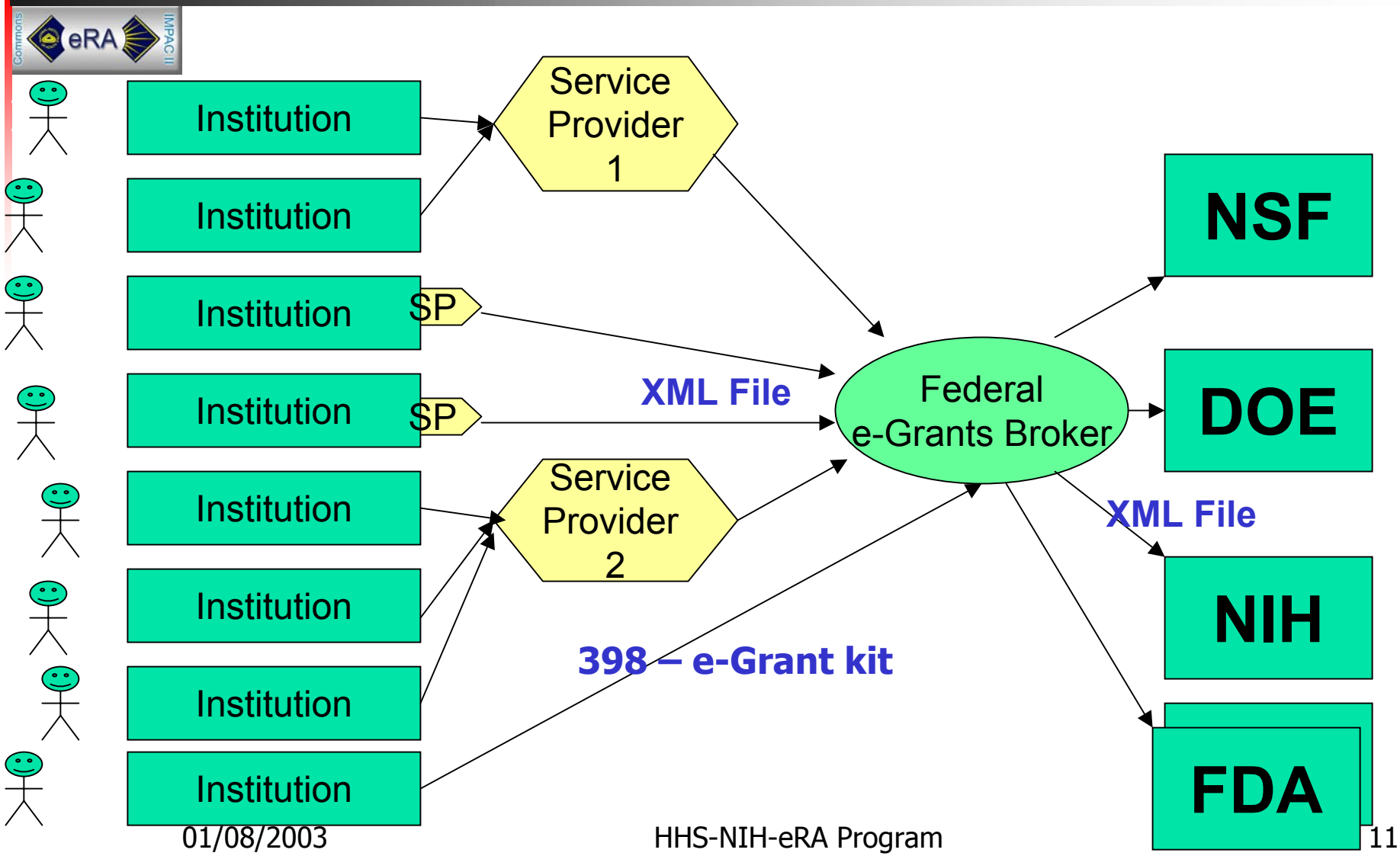
Receipt and Exchange Models

- Receipt Sources
  - Current model
  - Future model
- Exchange architecture
  - One-way communications versus
  - Exchange protocol
- Critical architectural decision

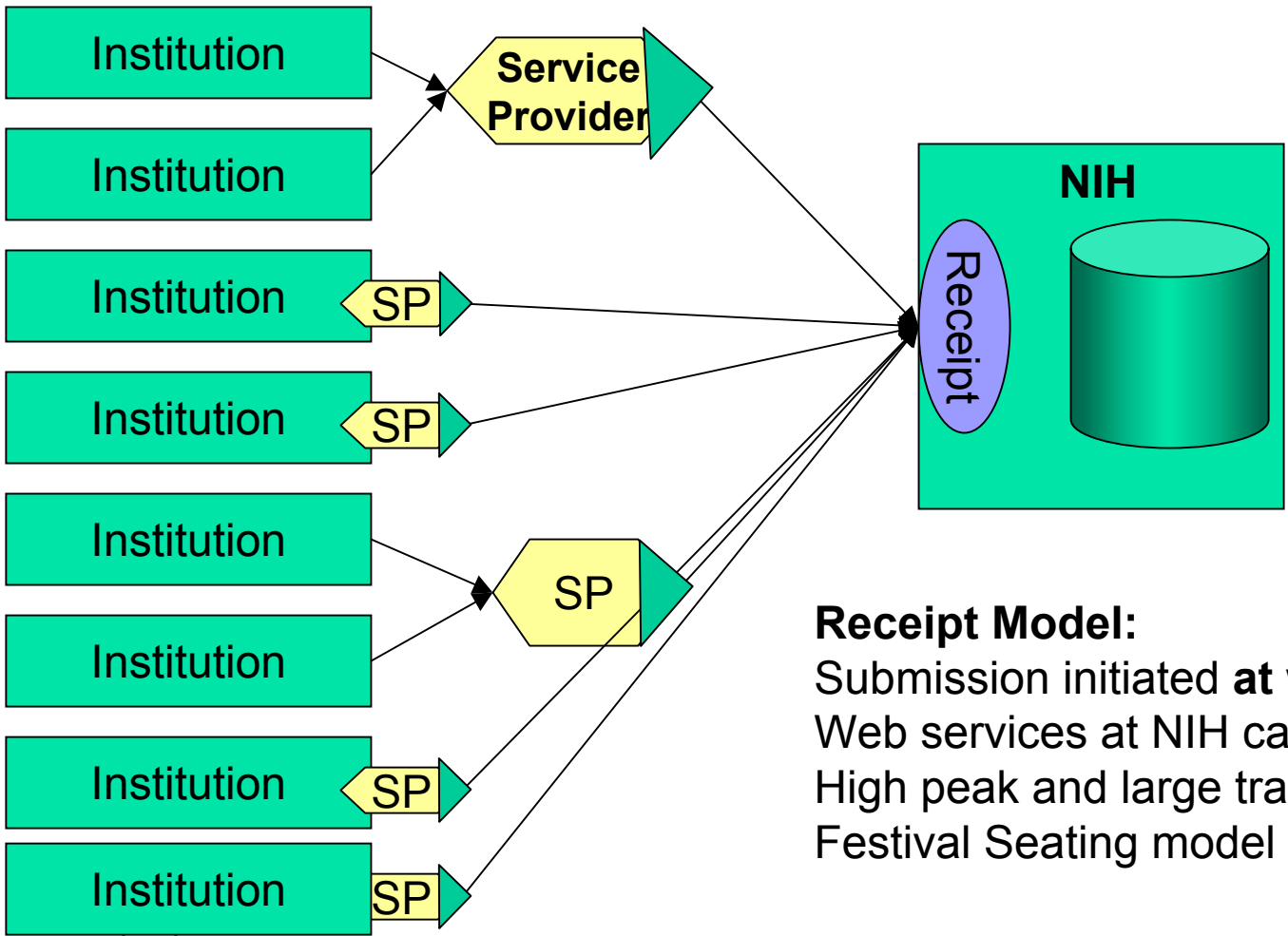
Current: Multi-Source Receipts



Single Source Receipt for NIH

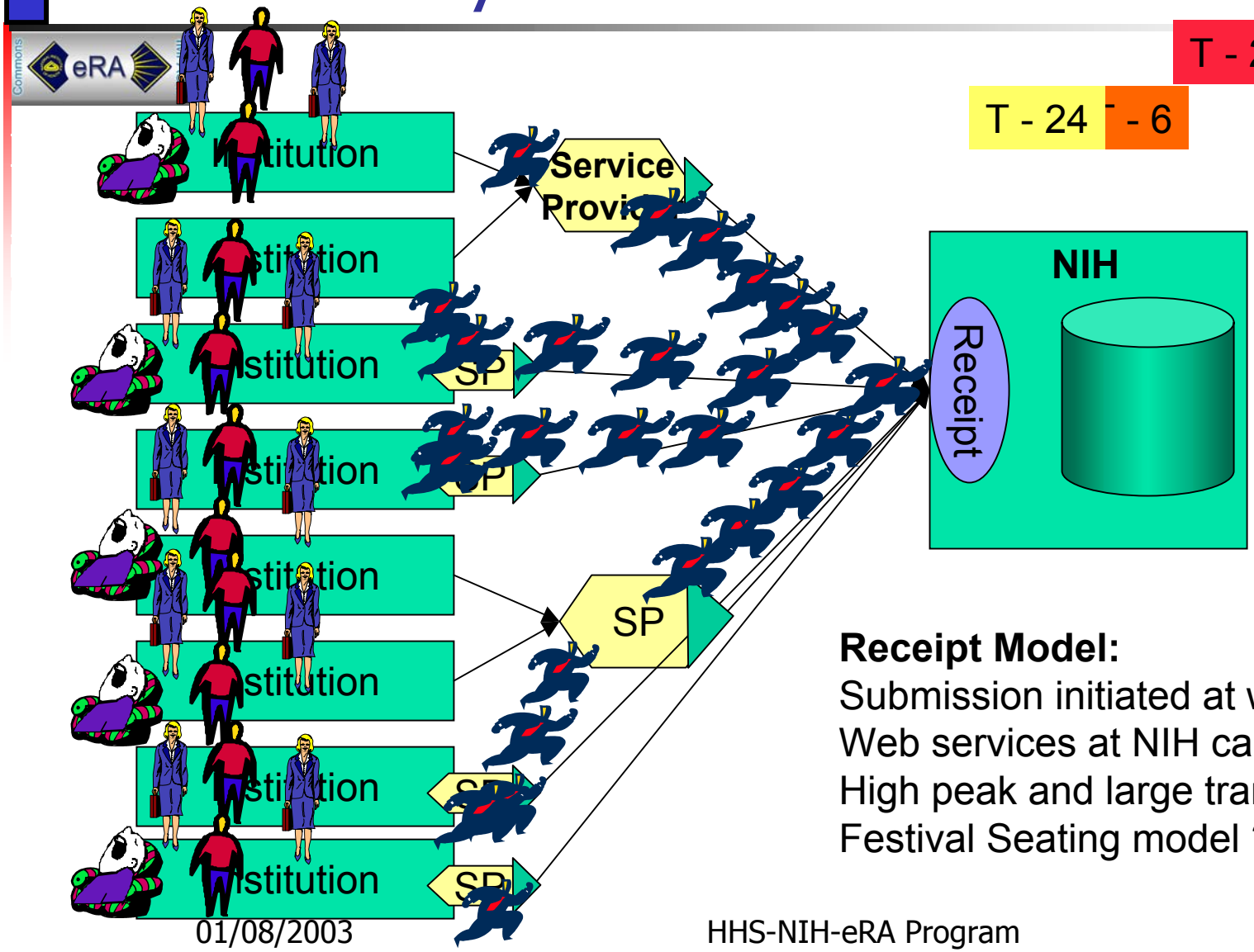


One-way Communications



Receipt Model:
Submission initiated **at will** by SP
Web services at NIH called by Submitter
High peak and large transactions
Festival Seating model ?

One-way Communications



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"Ticket" Process

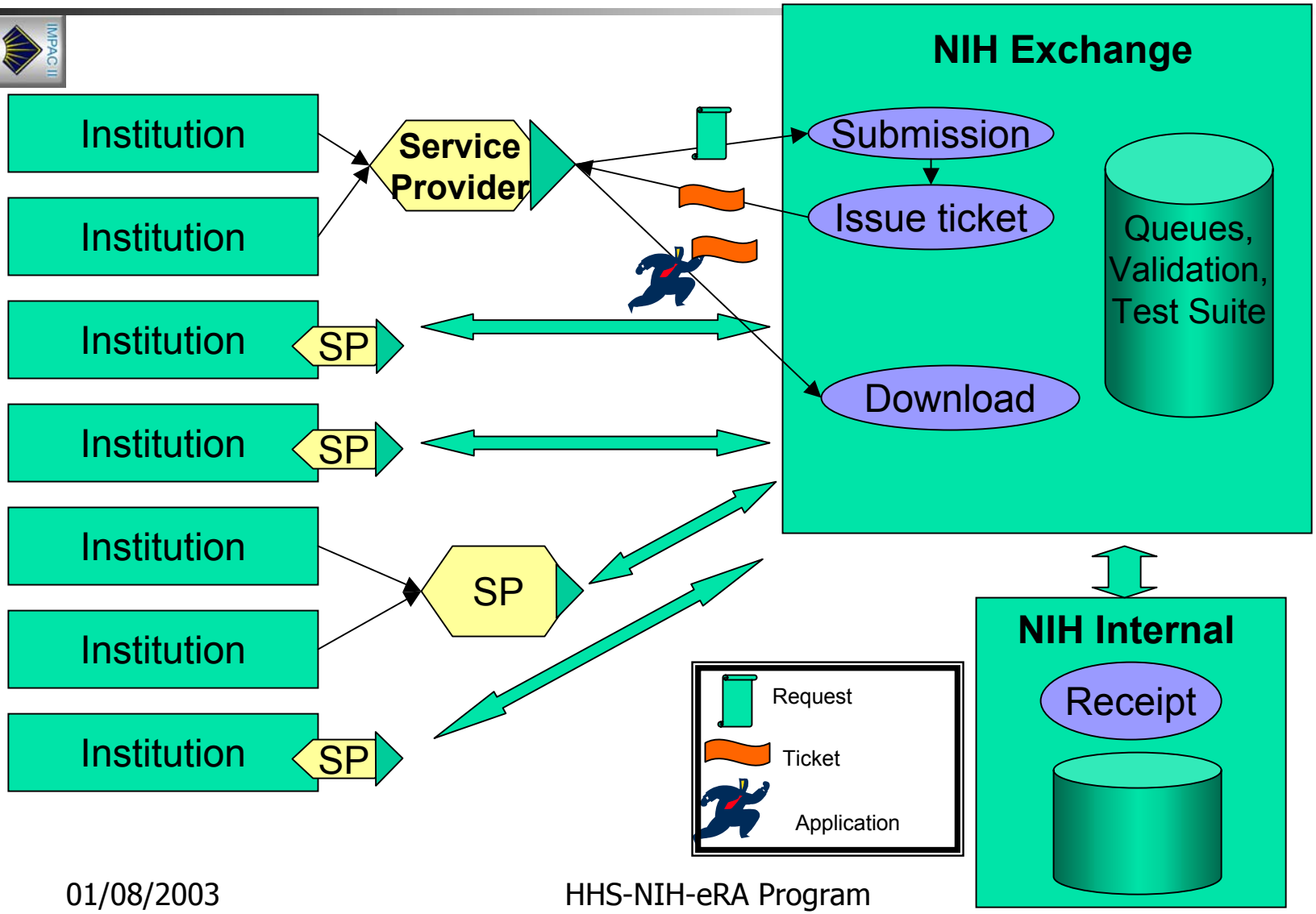
SUBMISSION

- Request for submission issued with application identifier and file characteristics
- NIH issues an accession number and a place in queue
- NIH records submission request and file characteristics

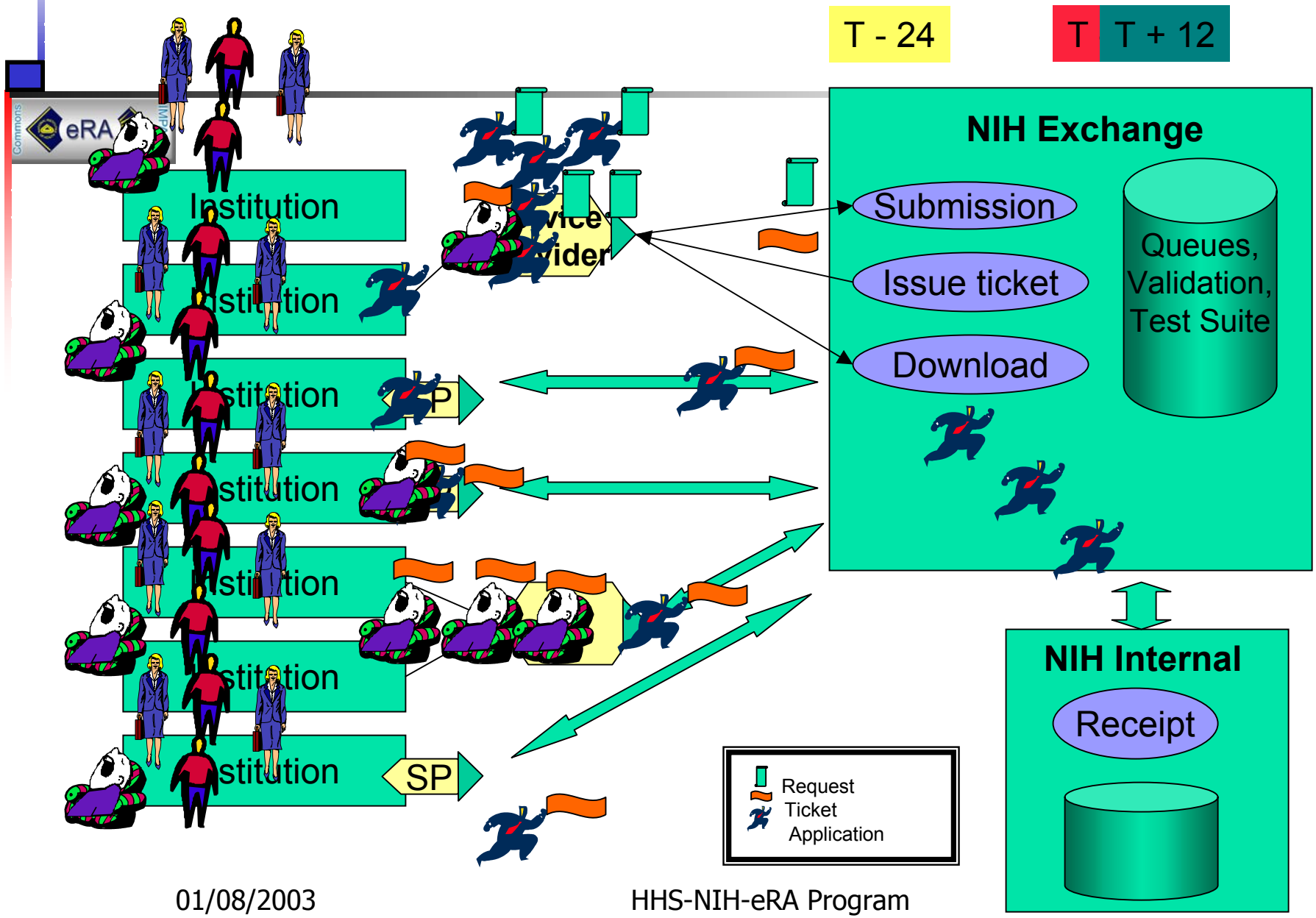
LATER

- NIH signals for download
- SP sends file or NIH gets it
- NIH processes file

"Ticket" Process



"Ticket" Model



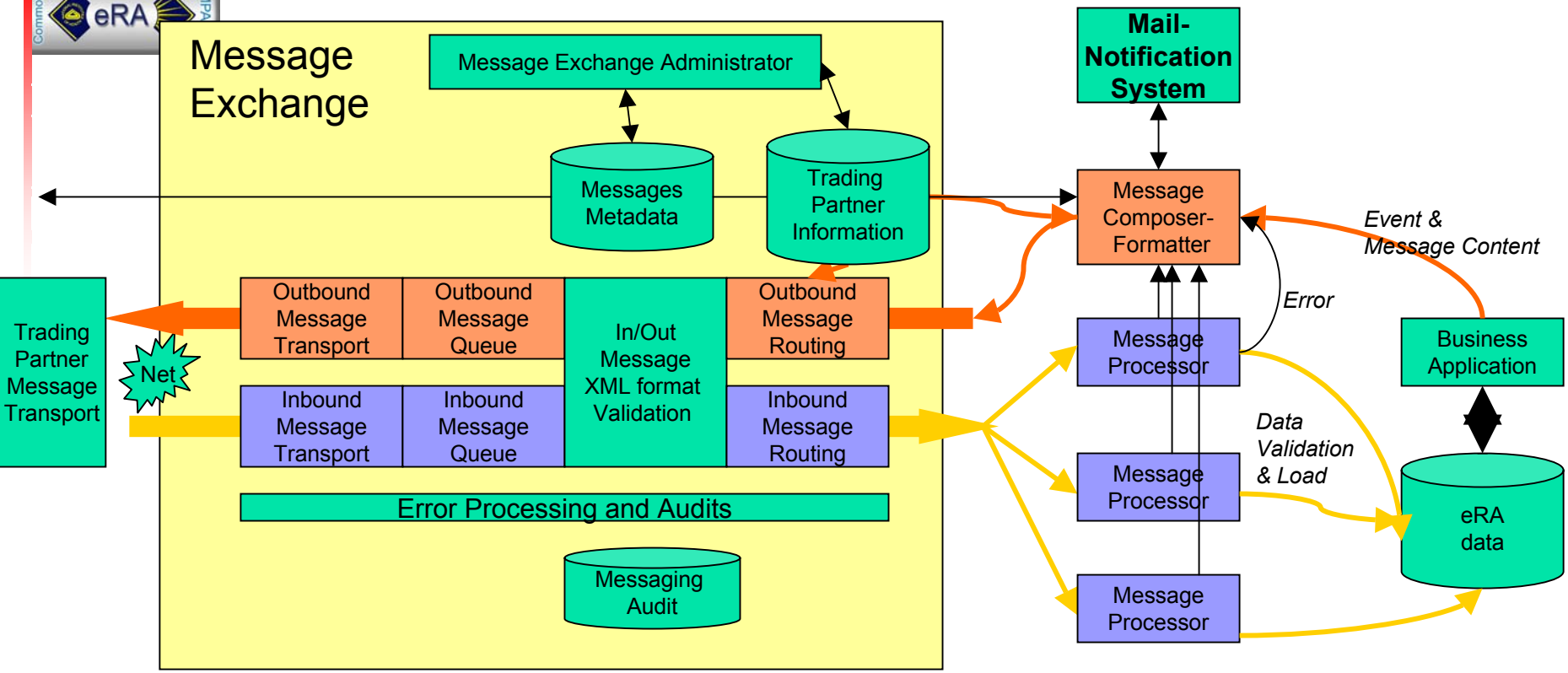
Exchange

- Two-way communications
- A protocol to send and receive messages
- A “Hand Shake” computer to computer
- Controlled transfer of the large transaction

Messages-Web Services

- A message is an XML file sent and received by a computer
- A message may have attachments
- Each message type has its own XML schema and workflow paths
- Example Message Types are:
  - Form 398 with PDF project plan and CV attachments
  - Appendices to a Form 398
  - Request for submission of 398
  - Queue ticket
  - Notification of receipt of XML file
  - Notification of acceptance of application by NIH
  - Notification of IRG and IC assignment
  - FSR, eSNAP, Profile Submission
  - Protocols
  - and so on

Functional Components of the Exchange



Components

- Trading partner agreement
- Message transport
- Message queues
- Message validation
- Message metadata
- Trading partner database
- Message content processors
- Notification, audits, error processing

Issues

- Approach not validated with E-Grants
- Each service provider must have a listener
- Each service provider must write the interfaces to their own systems and NIH exchange
- Standards may change
- Protocol and technology not defined
  - SOAP with attachments ?
  - ebXML? Or JAX APIS, COTS product ?

Major Tech Drivers

- Avoid a huge peak a few times a year
- Minimize footprint at the service provider site
- Pick a standard that may be stable
- Look ahead for B 2 G interchanges and other transactions

Advantages of exchange

- Commercial models exists
- Lots of standard components exists
- No huge peak load problem to solve
- Generalized interface suitable for streamlining all exchanges
  - Post receipt processes can be automated
- Could be kept relatively simple and nimble

Questions to audience

- Is it feasible ?
  - Can NIH send a message, computer to computer, to an institution or service provider and expect an answer (not e-mail) ?
  - Will Institutions or SP write interfaces in a specific protocol or using a set of Web services ?

Question about **applications** transfers

- Model 1: *Submitter says: Here it is, go get it when you are ready*
  - With submission Service Provider (SP) indicates where the file is. Later NIH initiates transfer.
- Model 2: *NIH says: Its your turn, give it to me*
  - When place in queue is reached, NIH requests transfer and SP initiates transfer (synchronized).
- Model 3: *Submitter asks: Is it my turn yet ? ….. OK here it is*
  - SP polls the NIH exchange for place in queue, when green light then SP initiates transfer.
- Model 4: *NIH gives a time frame for download with the ticket*
  - When ticket is issued, the NIH provides a time slot in which the application is scheduled to be transferred. The SP will download in that time frame or lose the place in queue

Current Status (Jan 03)

- Preparation of a Summary report: Feb. 3, 2003
  - Analysis of suitable technologies
  - Processing steps for receipt of applications
  - Proposed technologies for
    - Packaging, Transport of message
    - Exchange architecture
- Analysis of XML stream
  - Approach for handling core and non-core elements
  - Data element analysis, cross walk to 194, 424, 398, IMPAC II
- List of issues, action items and resolutions

Short term steps

- Publish the draft approach
- Request comments
- Work out and document the business rules for receipt, referral and review for e-applications for the Pilot
- Complete and publish the XML schema and SOAP envelope specification