Joint OAGI / EIDX Meeting

Implementing a Canonical Model for Application Integration

January 30th, 2002

Paul Seabrook
EAI Program Manager

Agilent Technologies
Agenda

- Agilent Profile
- Enterprise Application Integration Strategy
- The Challenge
- Solutions
- A Better Way
- Selection Process
- Net Results
- Lessons Learned
- Questions
Agilent’s Roots...

- Agilent’s roots go back to the earliest days of Hewlett-Packard, which started as a test and measurement company in 1939.
- The first product was an audio oscillator used by Walt Disney for the movie “Fantasia.”
- Agilent embodies historical commitment to innovation and contribution, uncompromising integrity, teamwork, trust and respect for the individual.

... and Milestones

March 2, 1999
HP decides to create two independent companies

July 28, 1999
Agilent’s name is selected

November 1, 1999
Agilent starts operating as an independent company

November 18, 1999
Agilent’s IPO takes place

June 2, 2000
Agilent becomes fully independent

Agilent Technologies
Agilent’s Fields of Focus and Leadership

Communications
- Communications Test
- Wireless Test
- Overall test and measurement

Electronics
- Fiber optic components
- High-speed networking ICs

Chemical Analysis and Life Sciences
- Liquid/Gas chromatography
- Mass spectrometry
Agilent’s Core Technologies

Communications/Electronics
- Measurement science
- Electronic circuit and systems design
- Fiber Optic and Optoelectronic devices and systems
- Applications software and solutions integration

Chemical Analysis/Life Sciences
- Radio frequency/microwave
- Optics/photonics
- High-speed optoelectronics
- High-speed electronics
- Solid-state materials/devices
- Communication protocols
- Network monitoring/mgt.

- Chemical separation/analysis
- Molecular biology
- Microfluidics

Agilent Laboratories
Agilent Around the World

- Customers in more than 120 countries
- More than half of revenue generated outside U.S.
- Global manufacturing and R&D

Agilent Technologies
Agilent EAI : Linking the Way

...  

- Create a common “glue”
- Open up siloed applications
- Establish a rapid integration framework
- Realize middleware ROI within 3 years
- Create economies of scale of a development factory

.... Connecting the dots
Mission

To develop and institute a common framework to interconnect strategic applications across the enterprise, ensuring alignment of IT investments with Agilent’s business goals.

Measures of success include:

- Reduced time-to-market for IT business solutions
- IT cost alignment as a percent of revenue
- Flexibility to accommodate changing business needs
Agilent’s Enterprise Middleware provides application “Plug And Play” capability by 2003. Enterprise Middleware provides strategic integration components to enable business and IT functions. Enterprise Middleware:

- Provides interconnectivity across application solution sets
- Is a strategic enabler
- Supports Agilent’s growth through rapid integration of our partners, suppliers and mergers/acquisitions
Silo applications to One-IT

- Improve business processes from customers through the extended enterprise
- Reduce applications from over 2000 to under 200
- Reduce IT spending as a % of revenue
- Select enterprise best-of-breed applications and use middleware as glue for integration
Efficient, Integrated Operations

> 2128 instances of 887 applications

Single integrated Database Worldwide

79 Data Entities

Agilent will benefit by:
- Access to accurate information that is integrated across the supply chain
- Improved/consistent visibility on product delivery lead time
- Simplified business processes
- Common processes and data across all business groups
Currently, we have point-to-point interfaces developed to integrate disparate systems. This point-to-point interface is system specific and has to be replaced or modified when any part of the system is modified.
The Challenge

- Multiplicity of applications across enterprise fulfilling the same function
- No enterprise wide application and information architecture
- Inflexible architecture
- Several versions of “enterprise-objects” such as Product, Customer, etc
- Support Agilent’s OneIT goals
What was the goal?

- Support the One IT concept
- Link legacy applications
- Link new applications (e.g. ERP, CRM)
- Common integration messaging
- Methodology and toolset to support enterprise messaging
Initially Identified Solutions

- Point-to-Point Interfaces in Middleware
- Batch Process
- Internal EDI
Issues/Concerns with these solutions

- **P2P in Middleware include:**
  - Stuffing middleware infrastructure with redundant messages
  - For all applications, a unique interface to every other application

- **Batch Process include:**
  - Continued with P2P legacy ‘boat anchor’
  - Not real time

- **EDI include:**
  - Old technology to support legacy batch store-and-forward architecture
Common Problems with all of these potential solutions

- Resource Intensive
- Not reusable or adaptive to change
- No way to meet customer demand
- Limited knowledge base on existing processes and applications
- No support for OneIT goals
There had to be a better way to integrate applications!

- Find a messaging solution which supports stated goals
- Identify what promotes effective use of middleware (we wanted to take advantage of its new technology and capability)
- Position for rapid change and future growth
- Position Agilent for beyond the firewall processing
A Better Way

- Answer: Standardized internal messaging (an order is an order…)
- Use common messages which are understood by disparate applications
  - Legacy
  - New Enterprise Applications
  - B2B
Revelation:

Canonical!!

Shared common view of business information
So what was next?

- We were not experts in messaging standards, so…
- Brought in outside team of experts:
  - Looked at the market to see what was available
    - Standards: RosettaNet, OAGI, ebXML, EDI
    - Architectural implications
  - Analyze standards in depth against ability to support desired canonical model
  - Determined the optimal solution for the canonical model
    - Which messaging standard to be used
    - Determining toolset(s) needed to deploy
    - Operating model
Selected the Common Vocabulary: OAGI

- Well-defined set of:
  - Message definitions
  - Process definitions
- Works well behind the firewall
- Architecturally neutral
  - B2B
  - Legacy
  - New enterprise architecture
We Started With:

- Proof of Concept
  - Built Use Case
  - Constructed Team of experts using both internal and external resources to look at:
    - Specific Integration Scenario
    - Application Integration/Development
    - Validated Deployment Methodology
Customer Canonical Development Model

Publisher

Field-1
Field-2
Field-3
Field-4
...
Field-n

Map-1

Map-2

Map-3

Map-4

Field-A
Field-B
Field-X
Field-Y
Field-Z

Canonical Model

Field-1
Field-2
Field-3
Field-4
...
Field-n

Subscribers

Field-1
Field-2
Field-3
Field-A
Field-B

Field-1
Field-2
Field-3
Field-X
Field-Y
Field-Z

Field-A
Field-X

Agilent Technologies
POC Success

- Completed in 2 weeks (develop and deploy)
  - Prior methodology would have required 2 months
- Proved that existing, out-of-box OAGI business scenarios could be deployed in the Agilent environment
Which Led To...

- Proof of Scalability
  - Prototype
- Selling and evangelizing the idea to
  - IT Management
  - Peers
  - Business Unit Management
- Identify the early adopters
Begin the Rollout

- Provide implementation services
  - Training
  - Methodology
  - Process
  - Tools

- Institutionalize entire framework across the enterprise
Results (Benefits)

- All applications speak through a common vocabulary
- Streamlined development
- Work is reusable and adaptable
- Positions to extend beyond the firewall for B2B and Web Services
- Supports the OneIT goals
Lessons Learned

- Creation of an enterprise-wide canonical model is best developed with EAI & the Enterprise Architecture team
- Involve application owners
- Work with “true” reference data
- Differences will exist between canonical and physical data models
- Must have champions for data areas
QUESTIONS?