Shrink-wrapped Messaging

From Wall Street to Mission Control

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Globalstar Satellite Constellation

- 8 planes, 6 satellites each
- 1414 km (750 nautical miles) at 52º inclination
- 113-minute orbit period
- 70º S to 70ºN latitude coverage
- Multiple satellite coverage in temperate zones
- High signal quality and availability
- 48 LEO satellites, 4 in-orbit spares
- Simple, existing proven satellite technology
- “Bent Pipe” relay to local gateways
- No on-board processing
- State of the art satellite manufacturing
- Strong partner Satellite heritage
Gateway

- Standard T1/E1 interfaces to existing PSTN/PLMN
- Cost of common equipment shared by up to 16 service providers
- Fire wall to ensure security between gateway sharing service providers
- Seamless services for global roamers, GSM and AMPS
- Unmanned operation with remote monitoring and operations
Managing the Gateways

- Responsible for planning and controlling satellite utilization
- Coordinating utilization with the Satellite Operation Control Center (SOCC).
- Plan communications schedules for gateways
- Control the allocation of satellite resources to each Gateway.
Managing the satellite constellation

• tracks the satellites
• controls the orbits
• provides Telemetry and Command (T&C) services for the satellite constellation
• oversees satellite launch and deployment activities.
• satellites continuously transmit spacecraft telemetry data that provides on-board health and status reports for the satellite.
The SOCC and GOCC facilities remain in constant contact through the Globalstar Data Network (GDN). The GDN is the connective network which provides wide-area intercommunications facilities for the Gateways, the Ground Operations Control Centers, and the Satellite Operations Control Centers.
Enterprise Application Integration

Diagram showing the integration of various applications including SAP R/3, Vantive, Siebel, and Data Warehouse, with connections to users, business partners, and customers.
A Closer View of Applications

- Application Programming Interfaces
  - controlled access point
- Business Logic
  - stored procedures
  - binary code
- Data
  - records, indexes
- Meta Data
  - database schemas
- Events
  - update, change, delete
Data-Level Integration

- Grand unification required
- Central point of failure
- Poor support for remote access
- Limited scalability
- Ignores business logic
- Application upgrades disruptive
- Synchronization issues
Point-to-Point “Collaborations”

- Application specific collaborations provide
  - ✔ Message Transport
  - ✔ Data Transformation
  - ✔ Business Process Logic

- Poor reusability
- Numerous interfaces
- Tightly coupled
- Difficult to manage
- Hard to “shrink wrap”
Federated Integration Architecture

- Shared infrastructure
  - ✔ Network Transport
  - ✔ Data Conversion
  - ✔ System Management
  - ✔ Enterprise Security

- Plug & Play integration
  - ✔ Application Adapters
  - ✔ Message Routing
  - ✔ Business Process Flow
  - ✔ Third Party Gateways
Federated Integration

- **Connection services (Transport)**
  - ✓ “The network is the computer”
  - ✓ Information Bus is an Application Chassis

- **Transformation services (Conversion)**
  - ✓ Normalize data whenever possible
  - ✓ Allow for easy construction and modification of data mappings
Federated Integration

- Application services (Logic)
  - ✔ Build new workflow and business logic outside of existing applications
  - ✔ Location independence is key to flexibility

- Management services (Operations)
  - ✔ monitored
  - ✔ managed
  - ✔ secure
  - ✔ scalable
  - ✔ fault tolerant
Marketplace Positioning & The “Tower of Middleware”

Challenges
- Integration
- Scalability
- Event-Driven
- Ability to Change/Flexibility
- Open
- Cost of Ownership
- Ease of Implementation

TIBCO has invested $300M over 14 years, and installed $2B worth of Integrated Middleware