



Shrink-wrapped Messaging

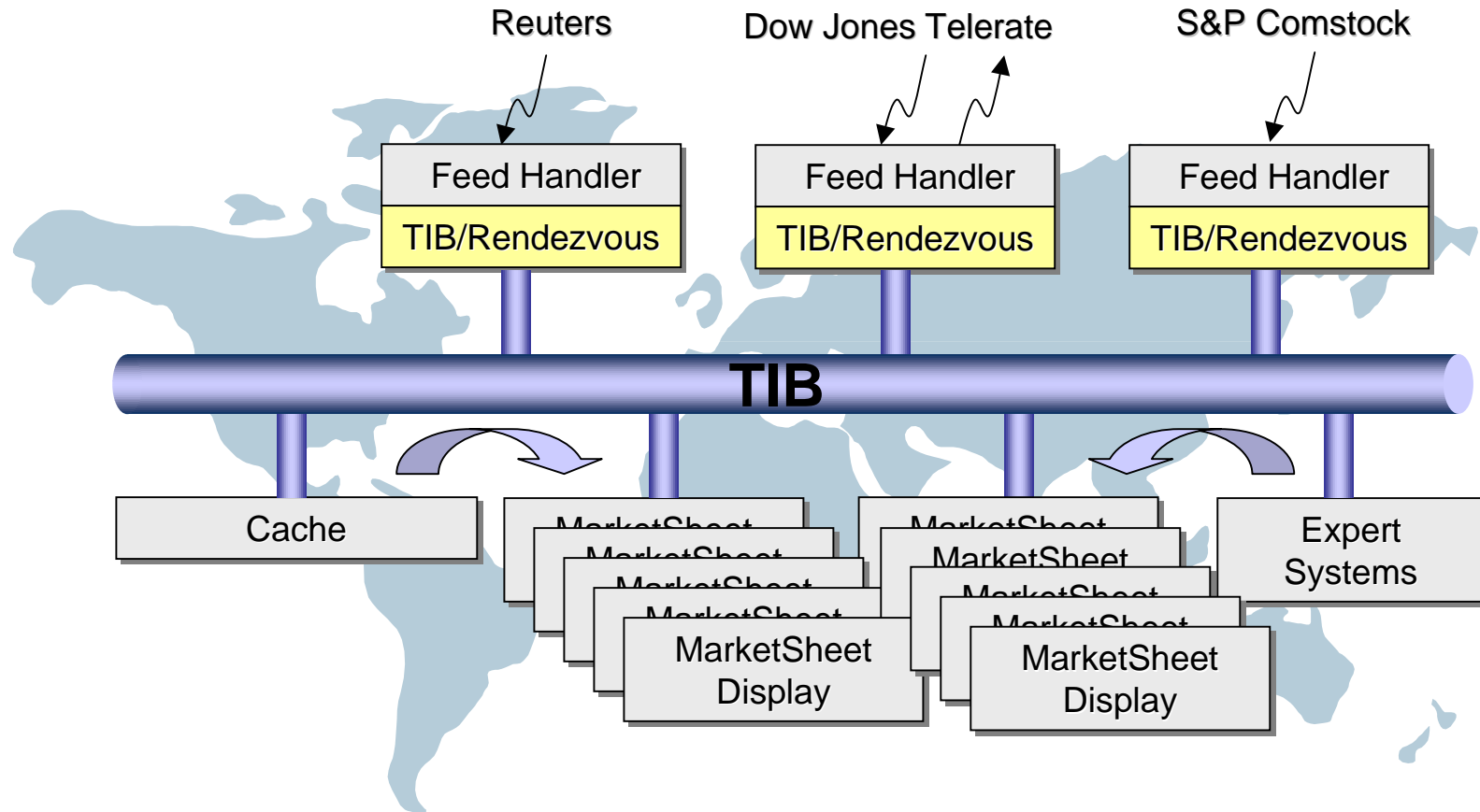
From Wall Street to Mission Control



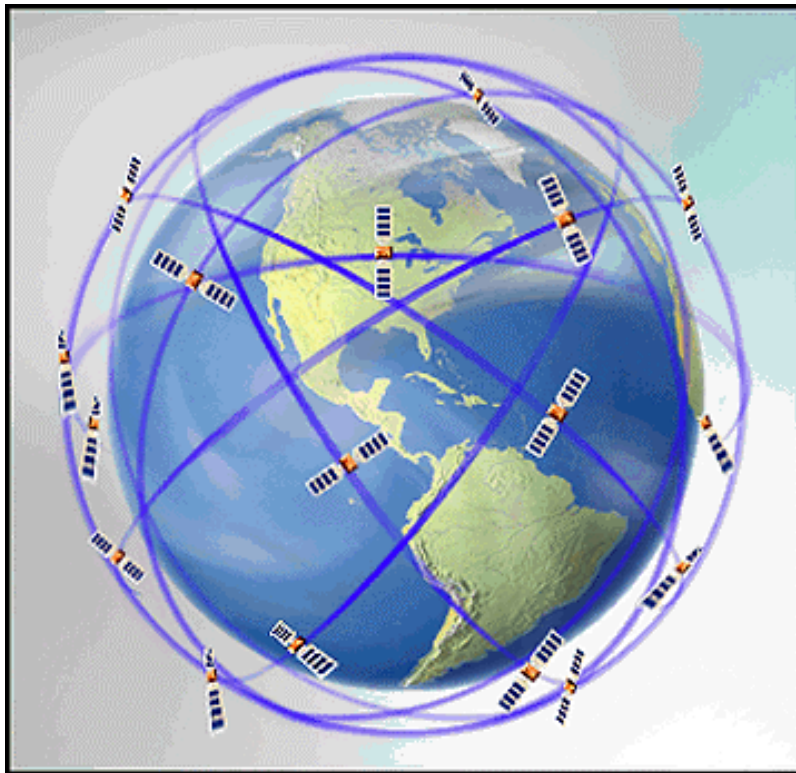
Hans Jespersen

Manager, Solutions Consulting

Market Data Distribution Systems

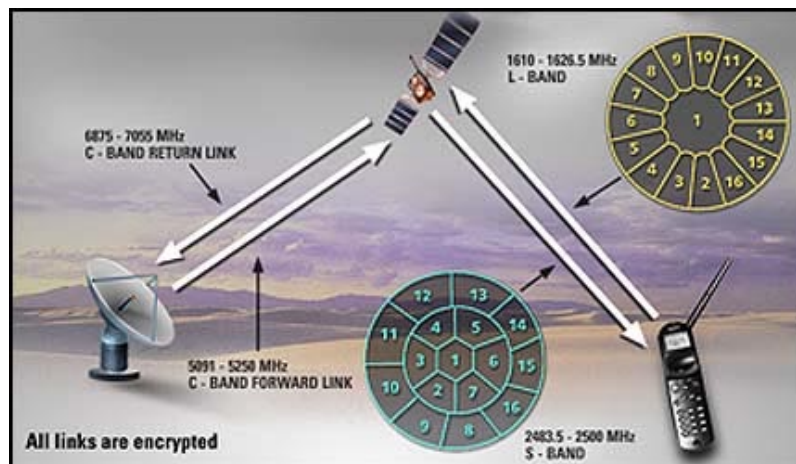
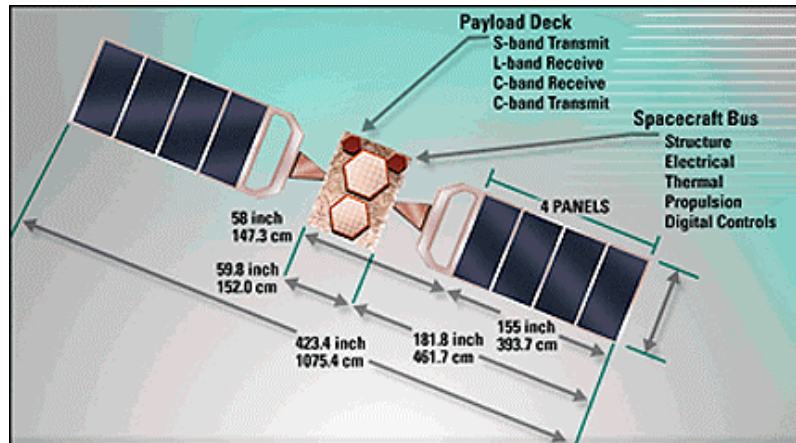


Globalstar Satellite Constellation



- 8 planes, 6 satellites each
- 1414 km (750 nautical miles) at 52° inclination
- 113-minute orbit period
- 70° S to 70°N latitude coverage
- Multiple satellite coverage in temperate zones
- High signal quality and availability

Satellites



- 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

Ground Operations Control Center



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.

Satellite Operations Control Center

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.

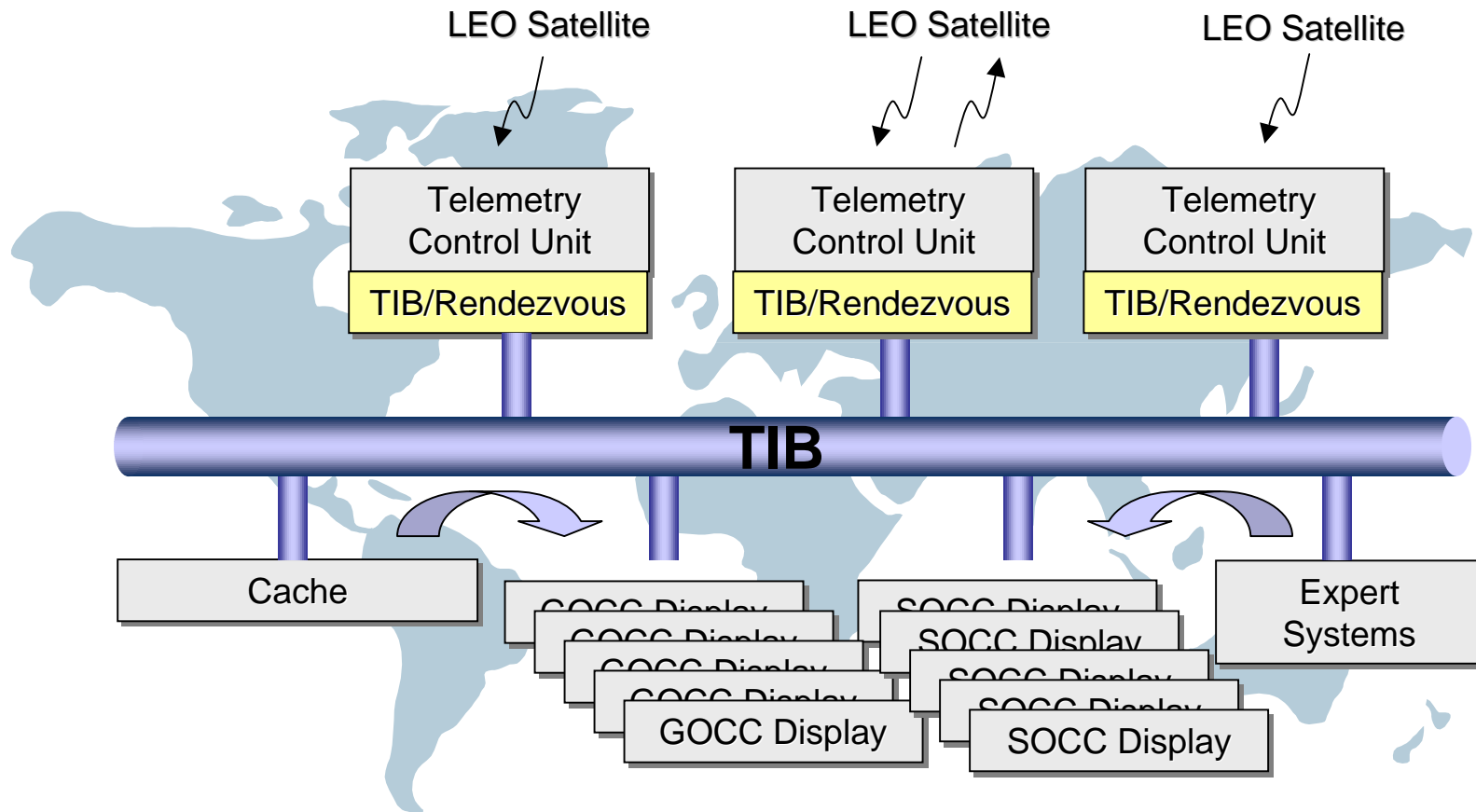


Globalstar Data Network

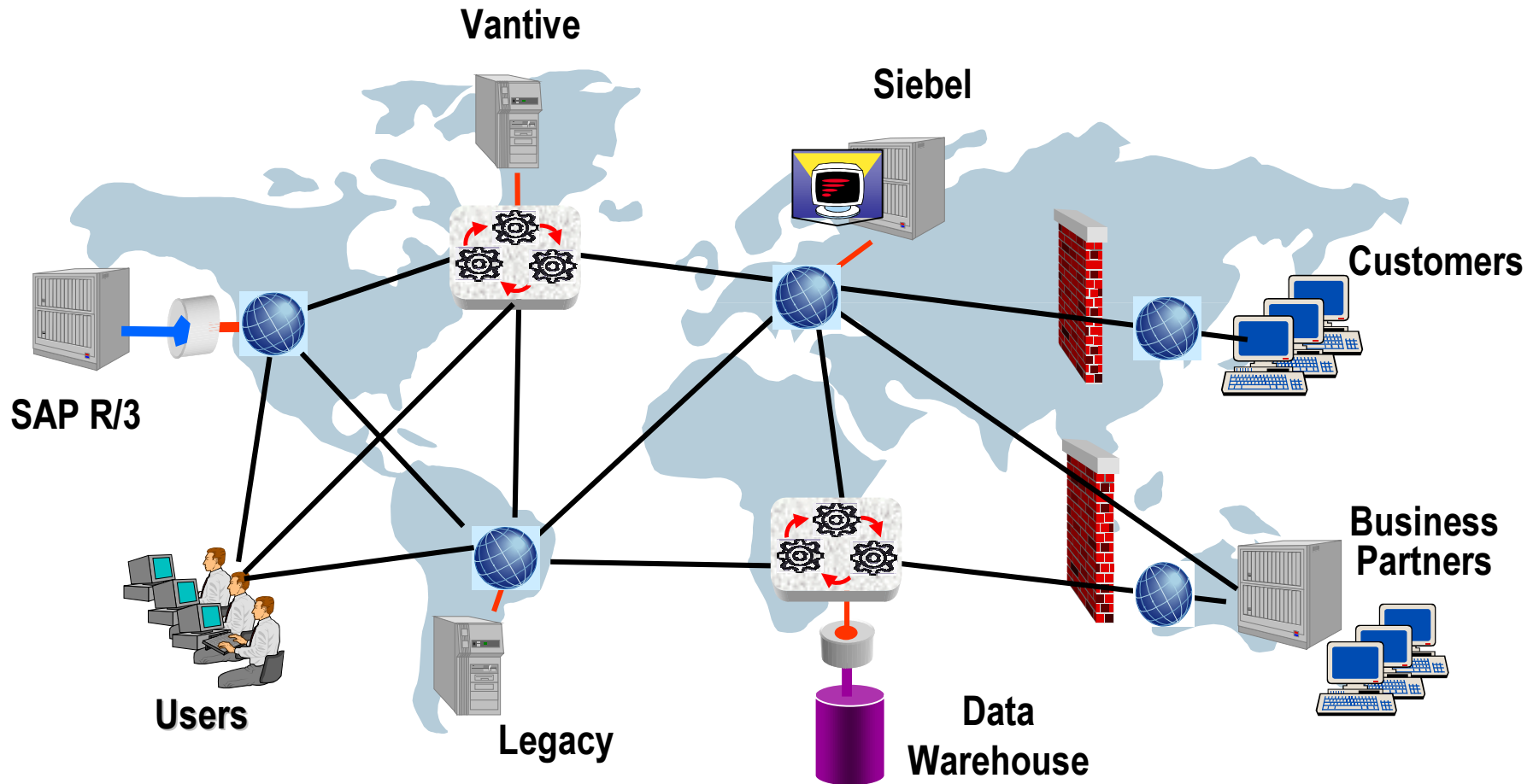


The SOCC and GOCC facilities remain in constant contact through the Globalstar Data Network (GDN). The GDN is the connective network which provides wide-area intercommunications facilities for the Gateways, the Ground Operations Control Centers, and the Satellite Operations Control Centers.

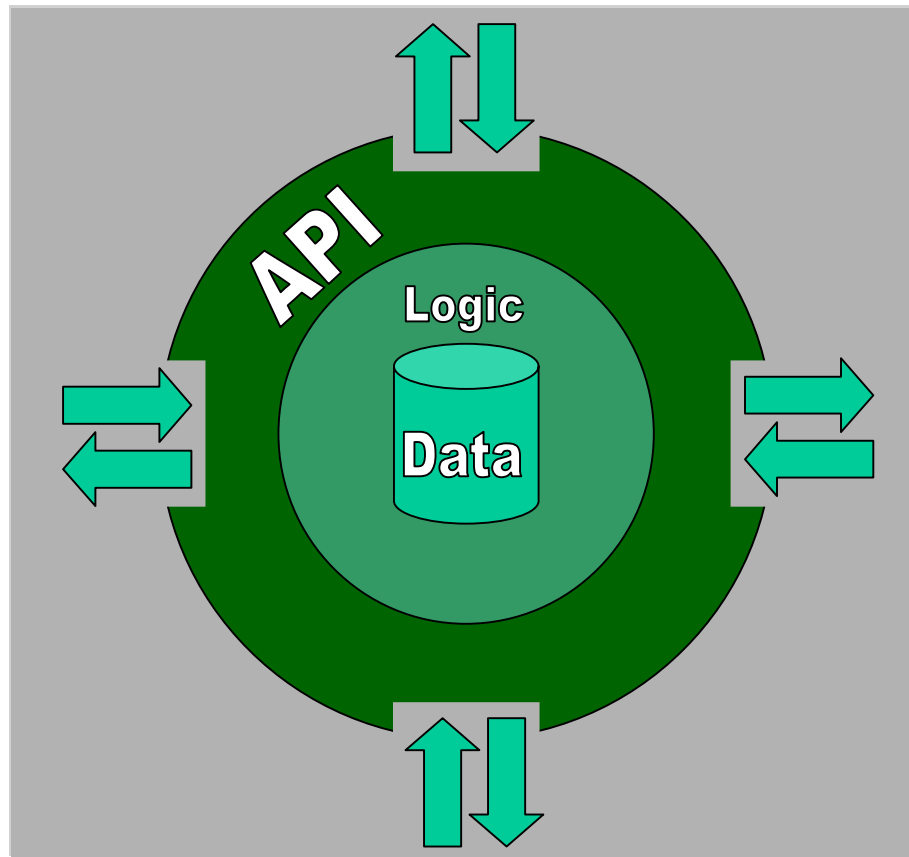
Data Distribution Systems



Enterprise Application Integration

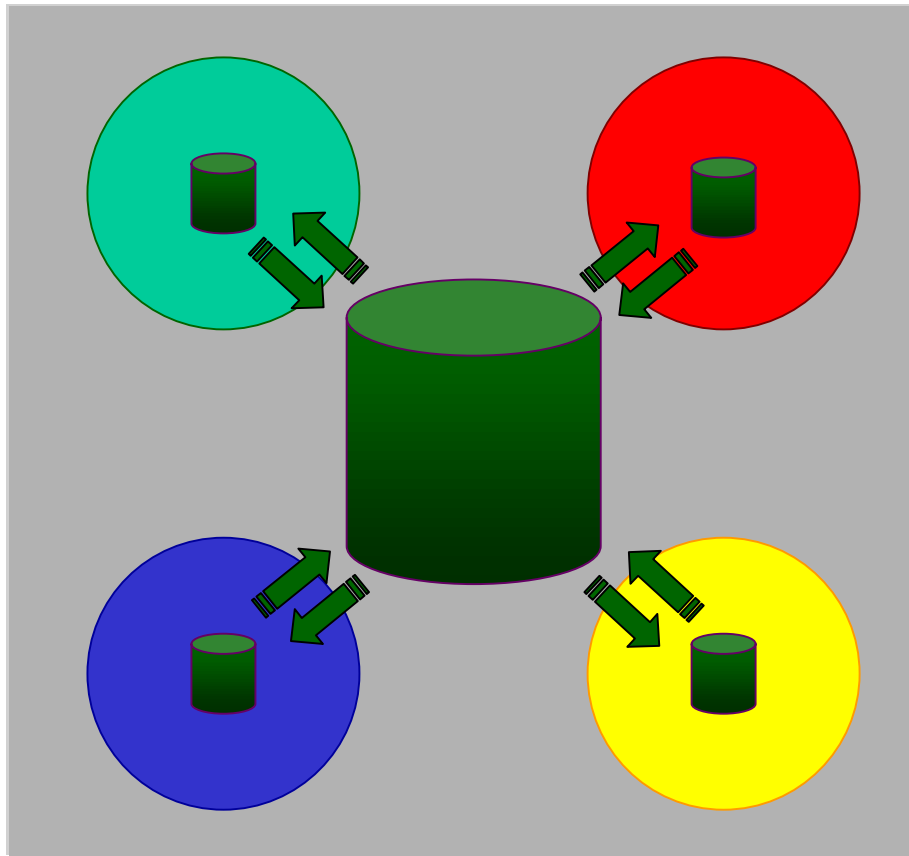


A Closer View of Applications



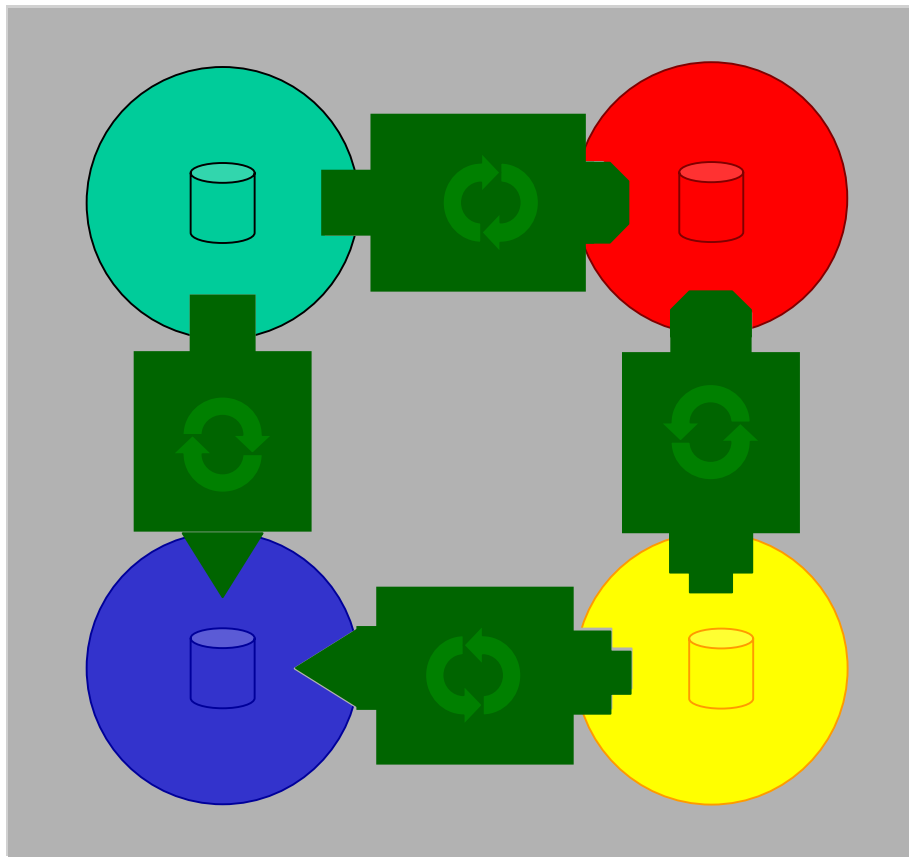
- Application Programming Interfaces
 - ✓ controlled access point
- Business Logic
 - ✓ stored procedures
 - ✓ binary code
- Data
 - ✓ records, indexes
- Meta Data
 - ✓ database schemas
- Events
 - ✓ update, change, delete

Data-Level Integration



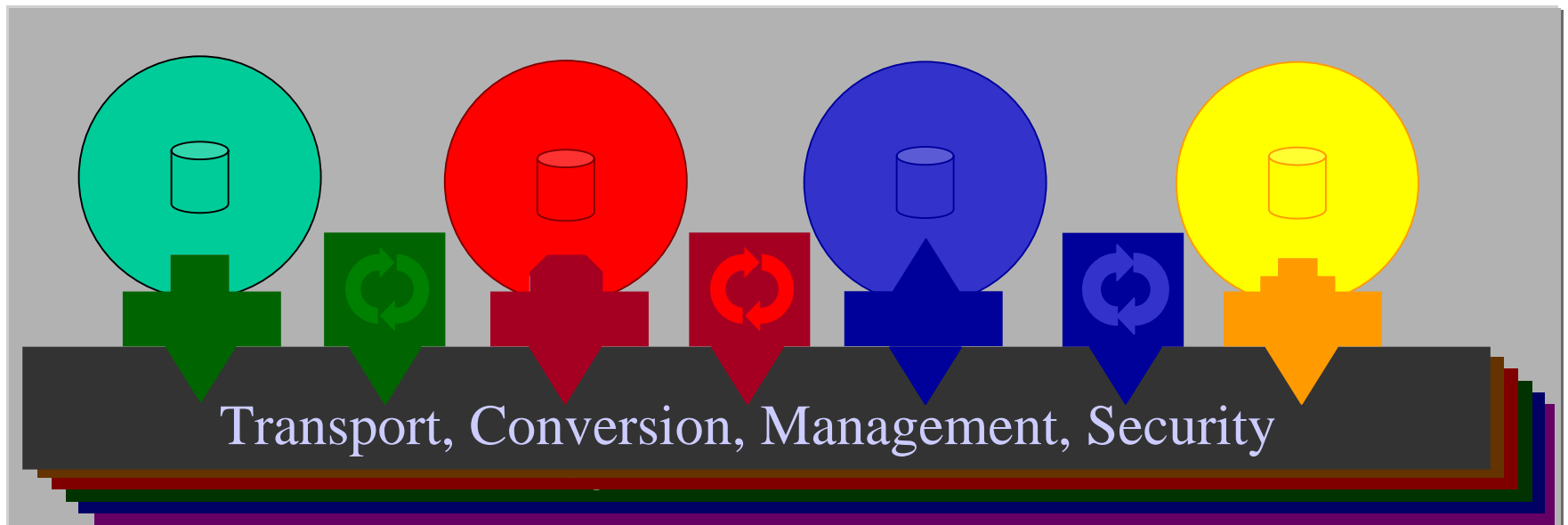
- Grand unification required
- Central point of failure
- Poor support for remote access
- Limited scalability
- Ignores business logic
- Application upgrades disruptive
- Synchronization issues

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

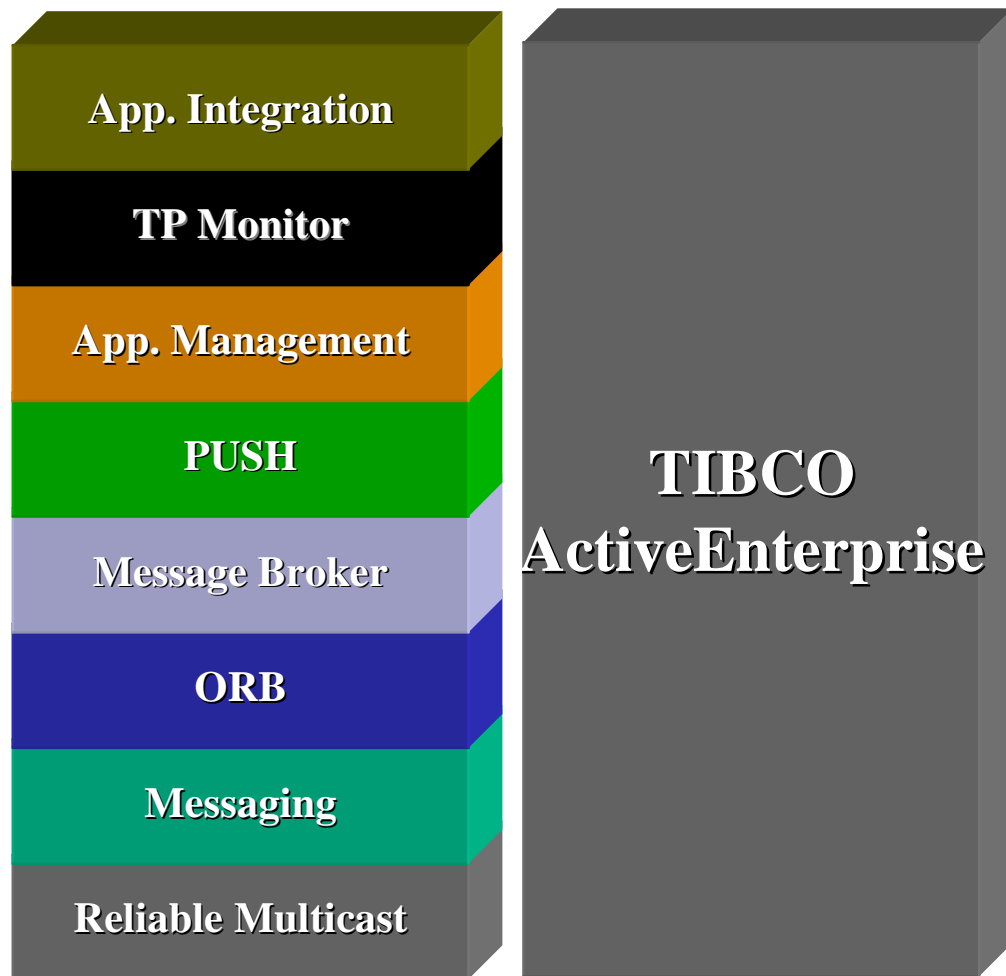
Federated Integration

- 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”



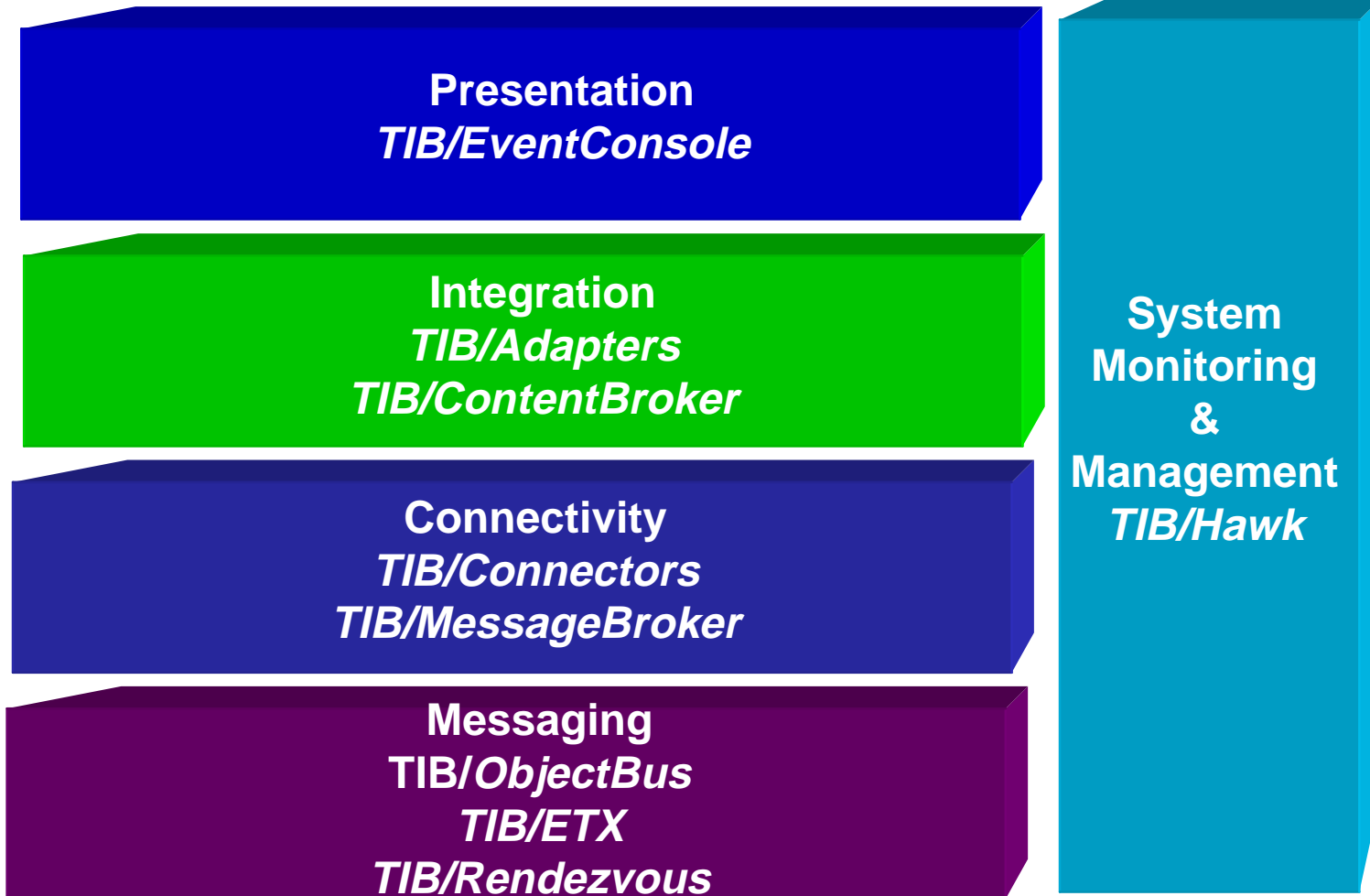
Challenges

- 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*



TIB/ActiveEnterprise Products





TIB/ActiveEnterprise

The EAI Product Suite

