Application Fabrics: a Google-like Approach to Service-Oriented Applications and Enterprise 2.0

Bob Lozano

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An Application Fabric is …

a grid-based application platform that dramatically simplifies the development and deployment of applications for high-volume data / transaction processing.

Application Fabric Characteristics

Scale-out Virtualization

Fabric looks like a single system:

- Enables linear application scale
- Complexity of distributed software development hidden from developers
- Complexity of distributed system management hidden from operators

Application-level Fault Tolerance

Fabric provides software-based reliability:

- Application state propagated to multiple machines at all times
- Ensures no job / transaction ever fails
- Simplifies development and operations
- Enables use of commodity hardware

Automated Management

Fabric & applications easy to deploy and manage

- Dynamically discovers and assimilates new computers
- Automatic provisioning of software stack
- Updates occur without downtime
- Maximizes performance while minimizing resource consumption

Applications 'inherit' these capabilities without manual coding

Why Do Application Fabrics Work?

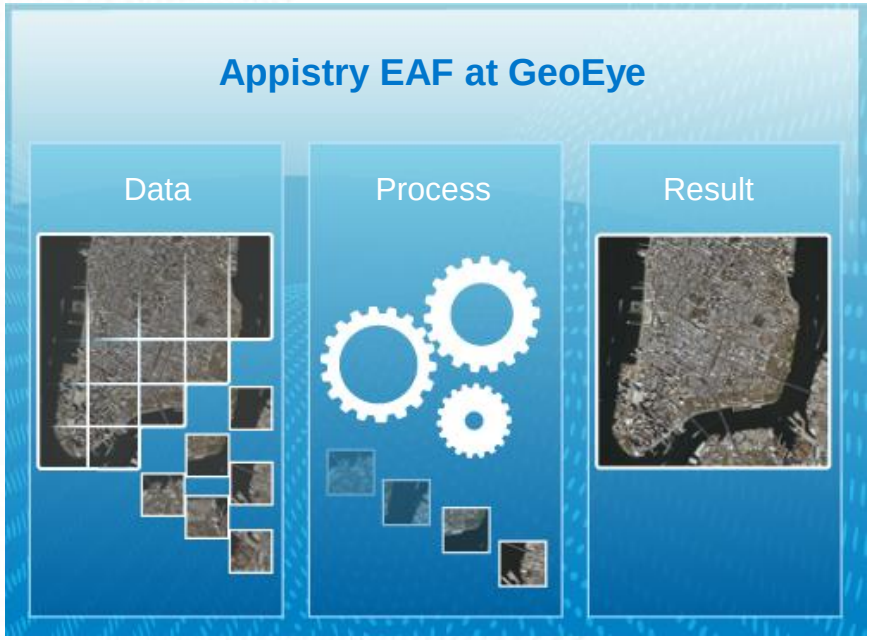
Simplicity—radically attack complexity.

Architecturally ensure reliability

Degrees of state—reduce dependence on the data layer

Natural parallelism without pain—follow the data fissures

Case Study - GeoEye



- ***Data:*** **Raw satellite image is retrieved from SAN and broken up into tiles**
- ***Process:*** **Tiles are processed using proprietary GeoEye algorithms for sharpening, geocorrection, etc.**
- ***Result:*** **Tiles are reassembled and stored back in SAN**

GeoEye

The leading provider of satellite imagery for government and commercial applications, GeoEye is building its next-generation image processing applications on Appistry EAF.

Challenges:

- Multi-core / SMP development complexity
- Risk, cost and agility of traditional platforms
- Meeting customer SLAs

Results:

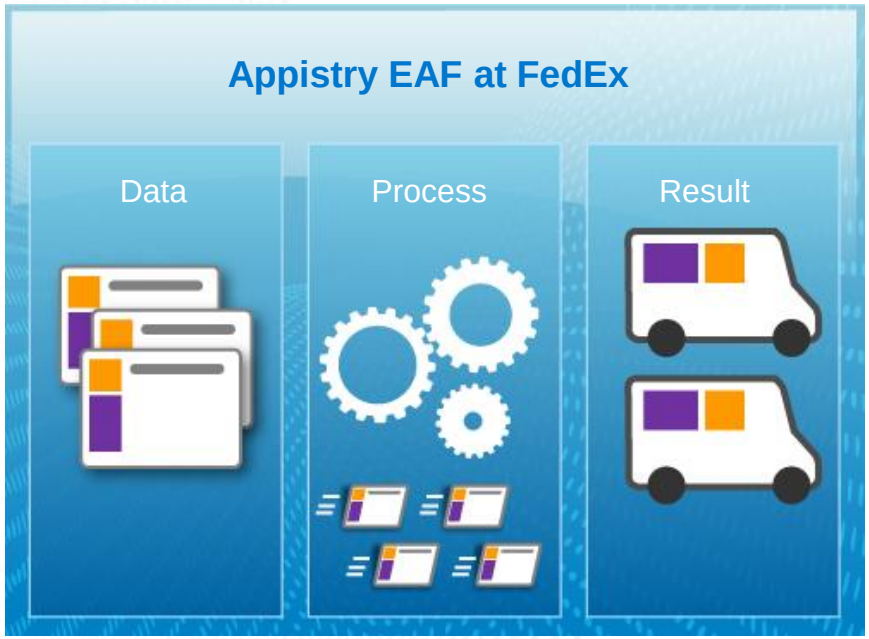
- Imaging applications now able to process in excess of 5 TB of satellite imagery per day
- Developers able to focus on core competencies
- Capital savings greater than $1.2 million
- Easily meet customer requirements for maximum processing time

“ By relying on the application fabric to provide scalability, reliability and manageability, we can leave our infrastructure concerns behind and focus on providing maximum value to our customers. ”

– Ray Helmering,
VP Photogrammetric Engineering at GeoEye

Case Study:

From Single-Threaded Algorithm in Lab to Large-Scale Logistics Solution in Two Days



- ***Data:*** **Database of today's packages**
- ***Process:*** **Calculate routes for each truck based on today's packages**
- ***Result:*** **Calculated routes propagated to loading and tracking systems**

FedEx

In order to increase efficiencies, FedEx is building a key logistics planning application on Appistry EAF.

Challenges:

- Bringing strategic application to market quickly
- Supporting existing application code
- Ensuring predictable request execution

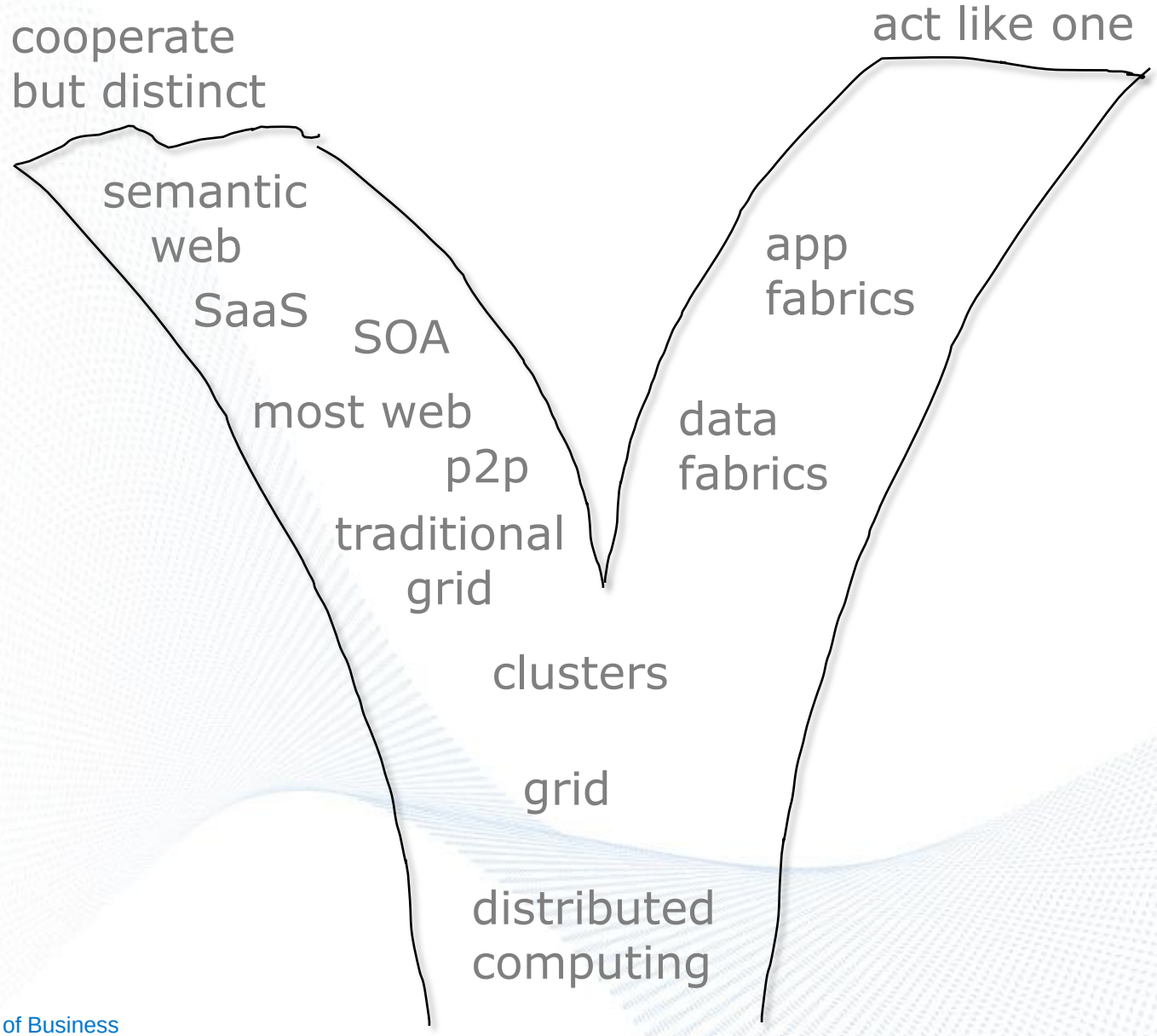
Results:

- Application deployed in one day
- Predictably processes all shipments in required timeframe
- Application to save tens of millions of dollars per years

Energy Optimization for Application Fabrics

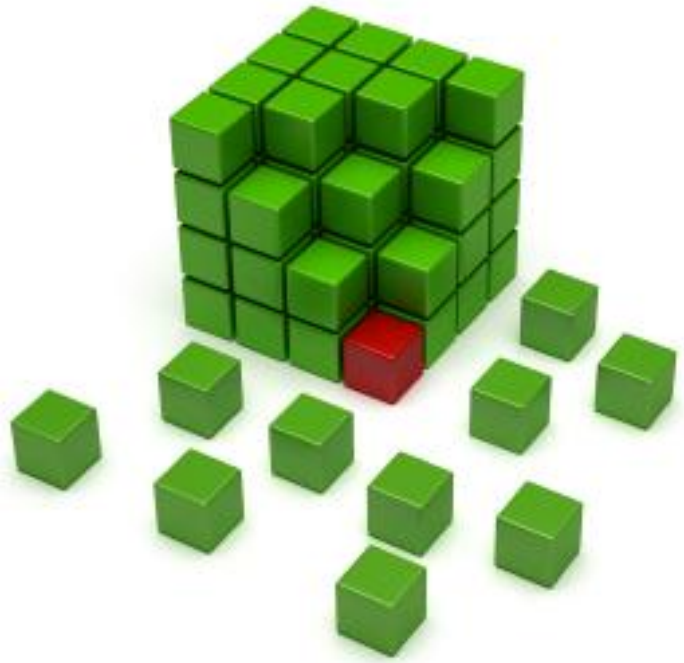
- *EnergySaver* – Add-on capability for fabric power management
- Customer sets policies for minimizing energy consumption, while ensuring application performance & service levels

A Natural Fork in the Road

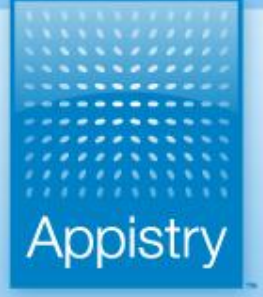


A Simple Abstraction

each service and application scales as needed, always work as expected, and manages itself …



… the perfect substrate for SOA



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