

Give your ERP some REST with p2ee

Data-centric, network-based Architecture for ERP Applications

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OSCON - San Jose, CA - July 2009

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Generalities

- Large Information Systems
- Enterprise “Integration”
- Components that:
 - Collect
 - Process
 - Store
 - Distribute
- Four Main Types
 - Operational
 - Knowledge
 - Administrative
 - Strategic

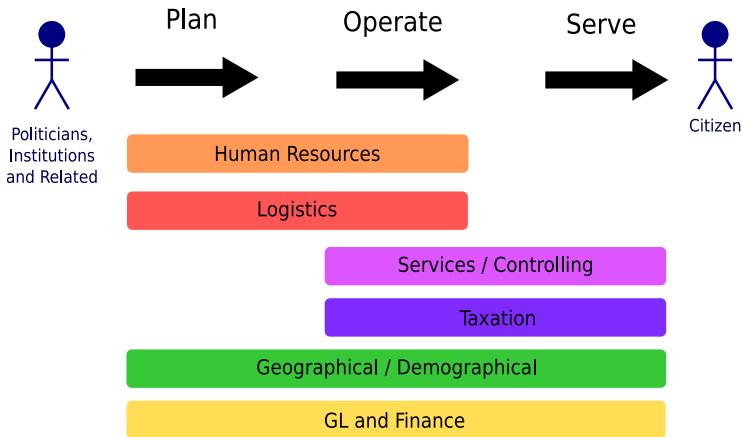
Generalities (cont...)

- Integrate and coordinate processes
- Eliminate Information Islands
- Main impact areas
 - Finance
 - Manufacturing
 - Logistics
 - Sales and Marketing
 - Human Resources

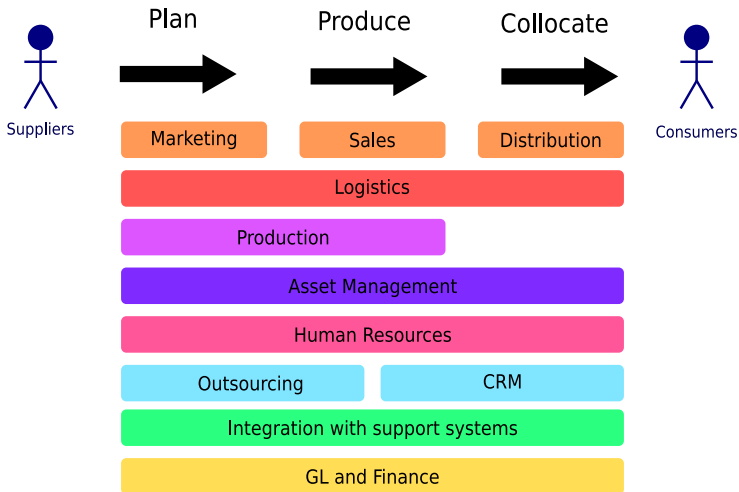
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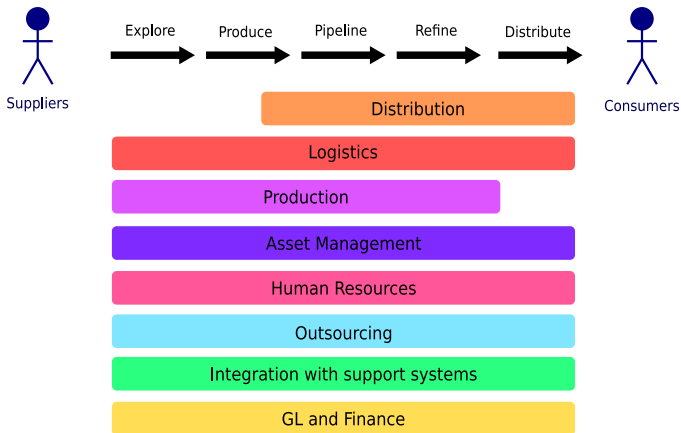
Government



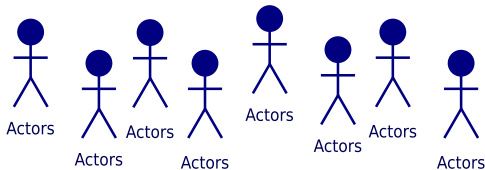
Manufacturing



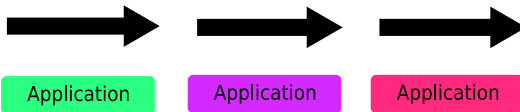
Oil & Gas



Generalization



Business Process



Functions

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ERP's Ugly Cousins

- Excessive cost: Licenses + Services
- Breadth and depth are inversely proportional
- ERP is *Enterprise Resource Planning*
- Is not A THING: Monolithic is *simply wrong*
- Reality check:
 - Most of the real business is actually run on spreadsheets!
- IT's ERP-related power is unhealthy

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Been there!

- Experience with (against?) ERP
 - > 5 dozen projects in over 17 years:
 - EAM, RCM, SCM
 - Have seen the failures first hand!
 - Competed with SAP, Oracle, BPCS, JDEdwards, etc...
- Participated in ISA S95 (ISO/IEC 62264), parts 3 and 4
 - First in the world B2MML interface with SAP
 - Chicago, Brussels & SAP Philadelphia 2004

ERP and FOSS

- Monolithic != FOSS
- Impossible to compete on equality of terms.
- Language / Platform competition between communities.
- Thousands of existing *great* FOSS applications
- Focus on Domain, Boundaries and Information Flows

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Domain, Boundary and Information Flow

- Example: Project Management
- The model: PMI
- Gnome Planner (GTK/Desktop) - Planning
 - Saves in XML
- dotProject (PHP/Web) - Execution & Control
 - Works on RDBMS

The actual challenge

- Clearly Understand:
 - Domain, Boundary and Information Flows
- A common, universal interface
 - CORBA
 - SOAP
 - WS*
 - Well, how about just plain'ol REST ?

Example S95

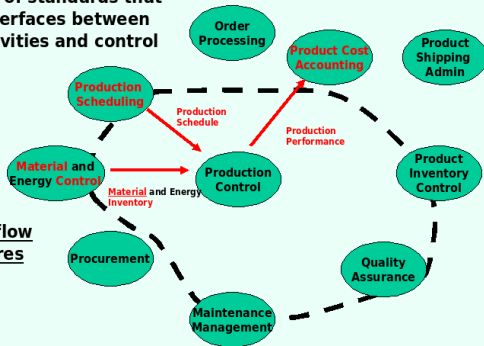
ISA S95 - IEC/ISO 62264



S95 is a “...set of standards that defines the interfaces between enterprise activities and control activities...”

Defines:

- Boundaries
- Messages
- Direction of flow
- Data structures



Red lines and text represent the interface developed

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p2ee is...

- RESTful Catalyst-based ERP Framework

p2ee is...

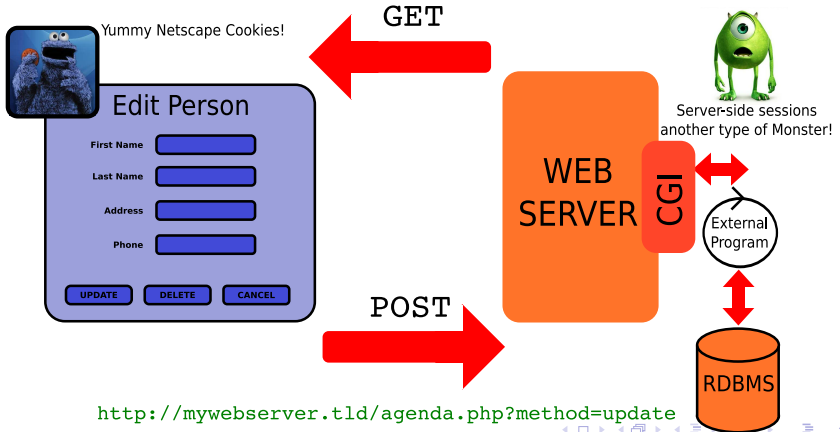
- An idea for other languages, platforms
- 100% REST Architecture
- Ideal for Web 2 Applications
- Client-side templating (Jemplate)
 - No sync problems with server side view
- Full Workflow / BPM
 - No need for ACL and complex screen logic
- Integrate-able
- Distributable
- Scalable

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RPC over HTTP - WRONG!

`http://mywebserver.tld/agenda.php?method=get&id=foo`



`http://mywebserver.tld/agenda.php?method=update`

Typical Web Application

- Uses HTML Forms to present database records
- HTML Forms are limited to HTTP POST and GET
- Forms are posted to an “action” URL
- Most functionality is basically CRUD
- Process is usually enforced by Role-based control on “actions”
- Process is modeled through document routing
- Role-based security + document status

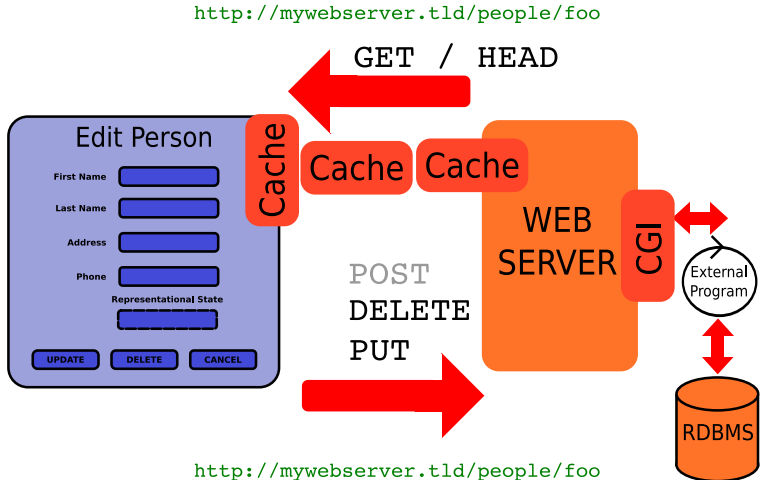
Problems of the RPC Style

- Is not Web! - At least not Internet-scale Web...
- Not very scalable (Server-side sessions, shopping carts, etc.).
- Problems passing multiple trust boundaries.
- Interface is not generic with standard semantics.
- Exposing the API is not a good *idea* in general.
- SOAP, XML RPC are even worse!
- Caching becomes a problem.
- Reduced Visibility

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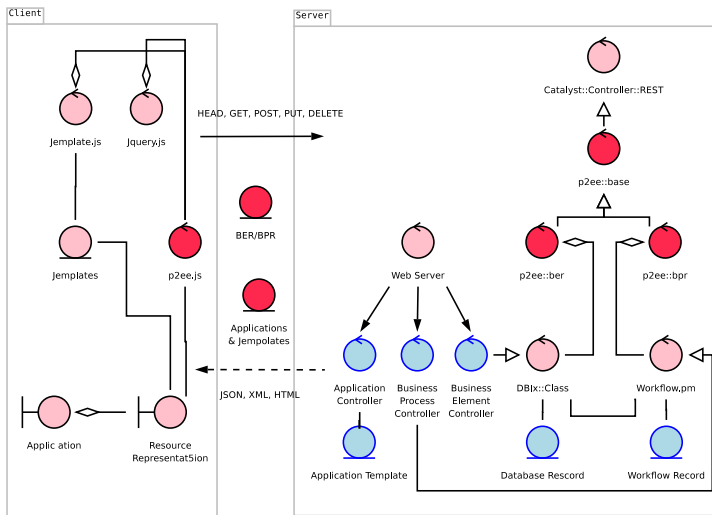
REST Universal Interface



Based on Resources

- Business Application Resources
 - URL to the application itself
- Business Element Resource
 - Inventory part
 - Invoice
- Business Process Resources
 - States, Actions and Fields

Simple != Bland



p2ee is...

- ERP framework on top of Catalyst
- Based on the REST Architectural Style
- Can be done in any language
- Integrate-able
- Can easily evolve and adapt
- Pure workflow/bpm, no need for ACL
- Simple HTTP Authentication

Current State

- Finishing BPR stuff
- Extend/compoete Workflow.pm field types
- Ideas for other business app communities:
 - Common model for BER, BPR, etc.
 - Common Model for Business Archetypes

REST of 2009

- Inventory Management
- Purchasing
 - Purchase Orders
 - Purchase Invoices
 - AP Transactions
- Sales
 - Sales Orders
 - Sales Invoices
 - AR Transactions

Next Year

- Part hierarchies, BOM
- Rotable/Serialized Items
- Basic Equipment Master
- If we get VC:
 - Location Hierarchies
 - Equipment / Location (IDEF0-RCM)
 - Reliability Centered Maintenance

Come join us!

- Users
- Sponsors
- JavaScript / JQuery Experts
- Domain Experts
- CPAN packaging volunteers
- Catalyst plugin packagers
- Documenters