

**BRITISH AIRWAYS**





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Document based services at  
British Airways

12<sup>th</sup> March 2009



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Technical Architect

**Stewart Marshall**  
Technical Architect



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**Ticket type**

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- Flexible conditions

<b>Adults</b> (12+)	<b>Children</b> (2-11)	<b>Infants</b> (0-2)
1 <input type="button" value="v"/>	0 <input type="button" value="v"/>	0 <input type="button" value="v"/>

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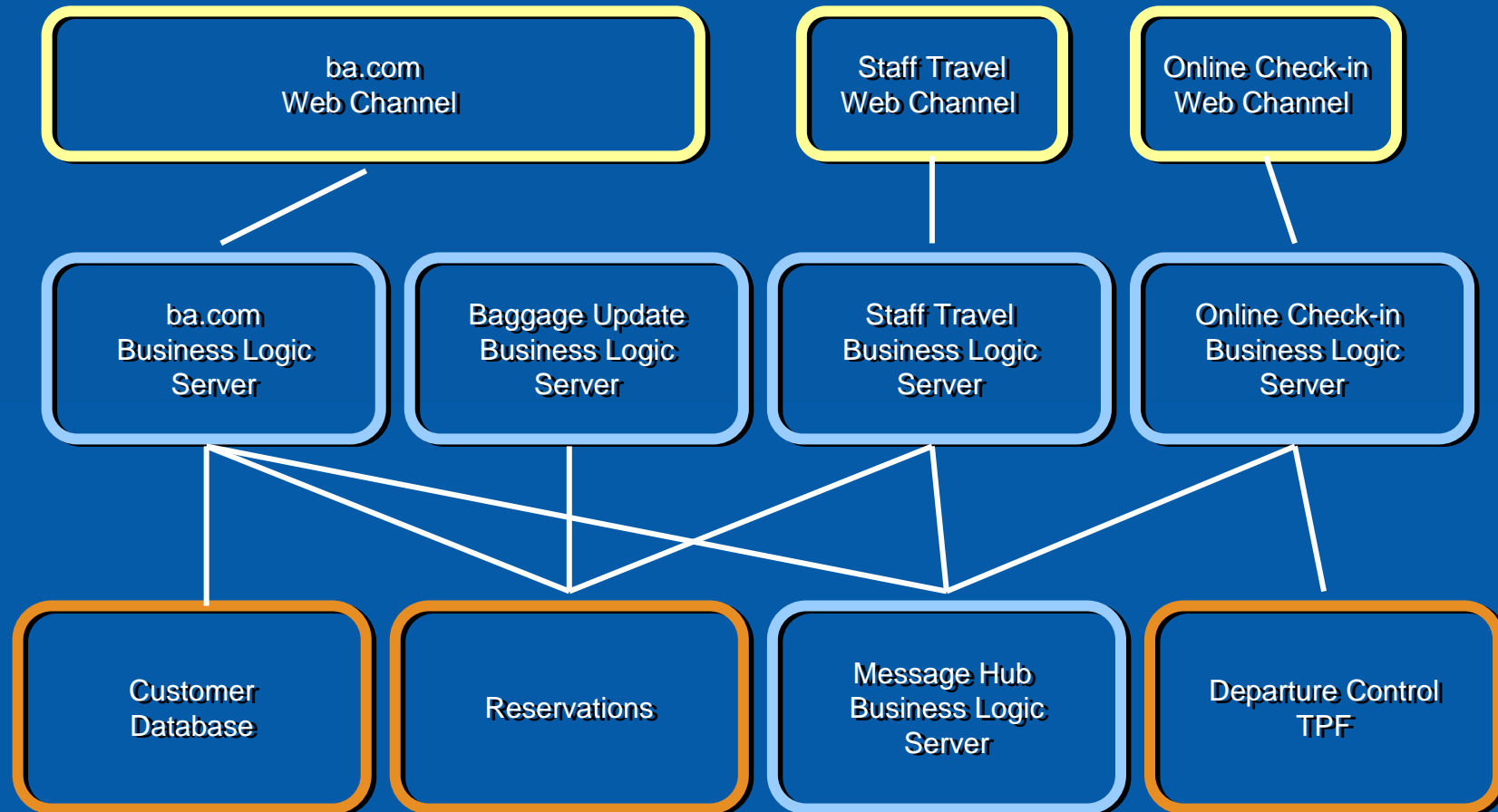
**Travel news**

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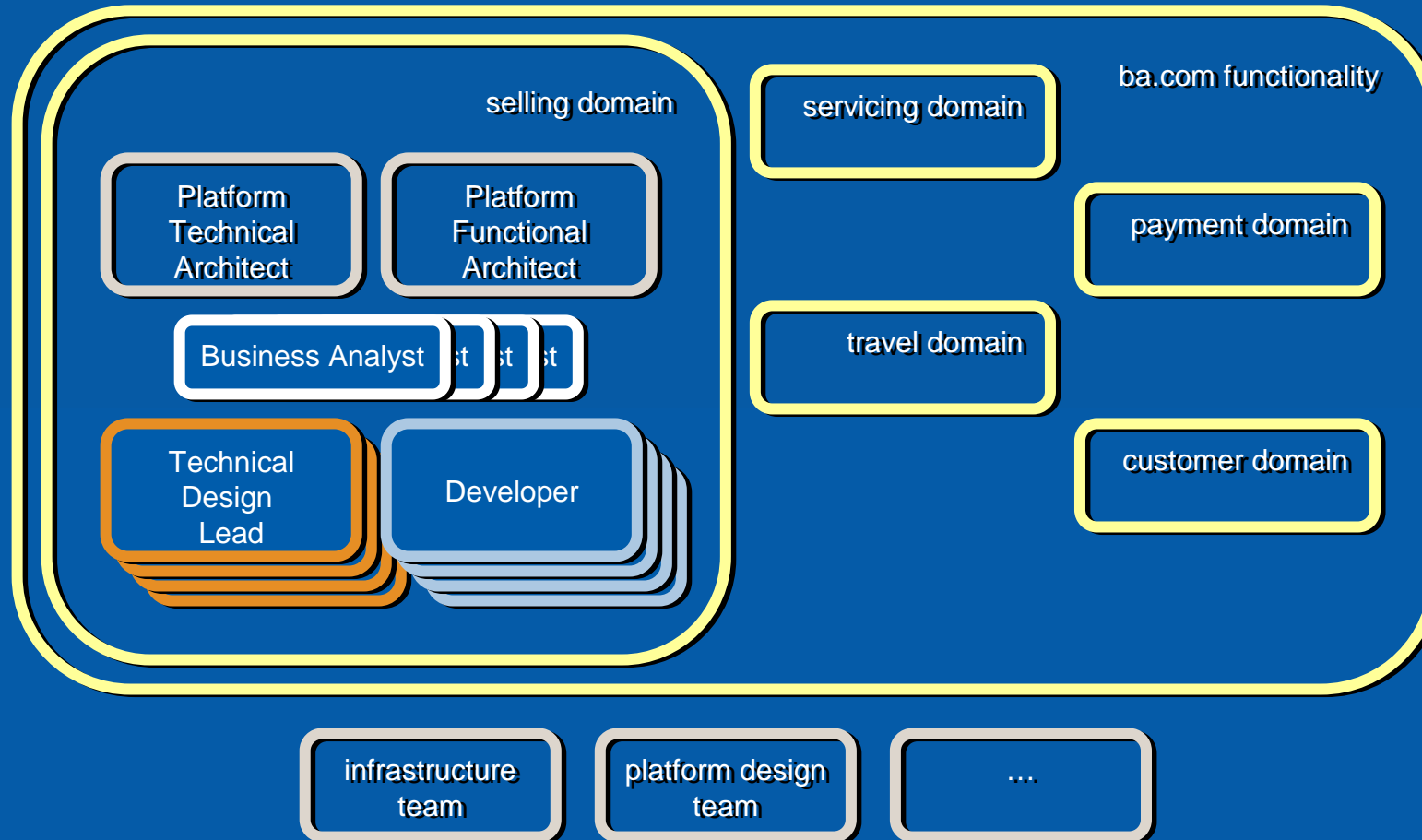
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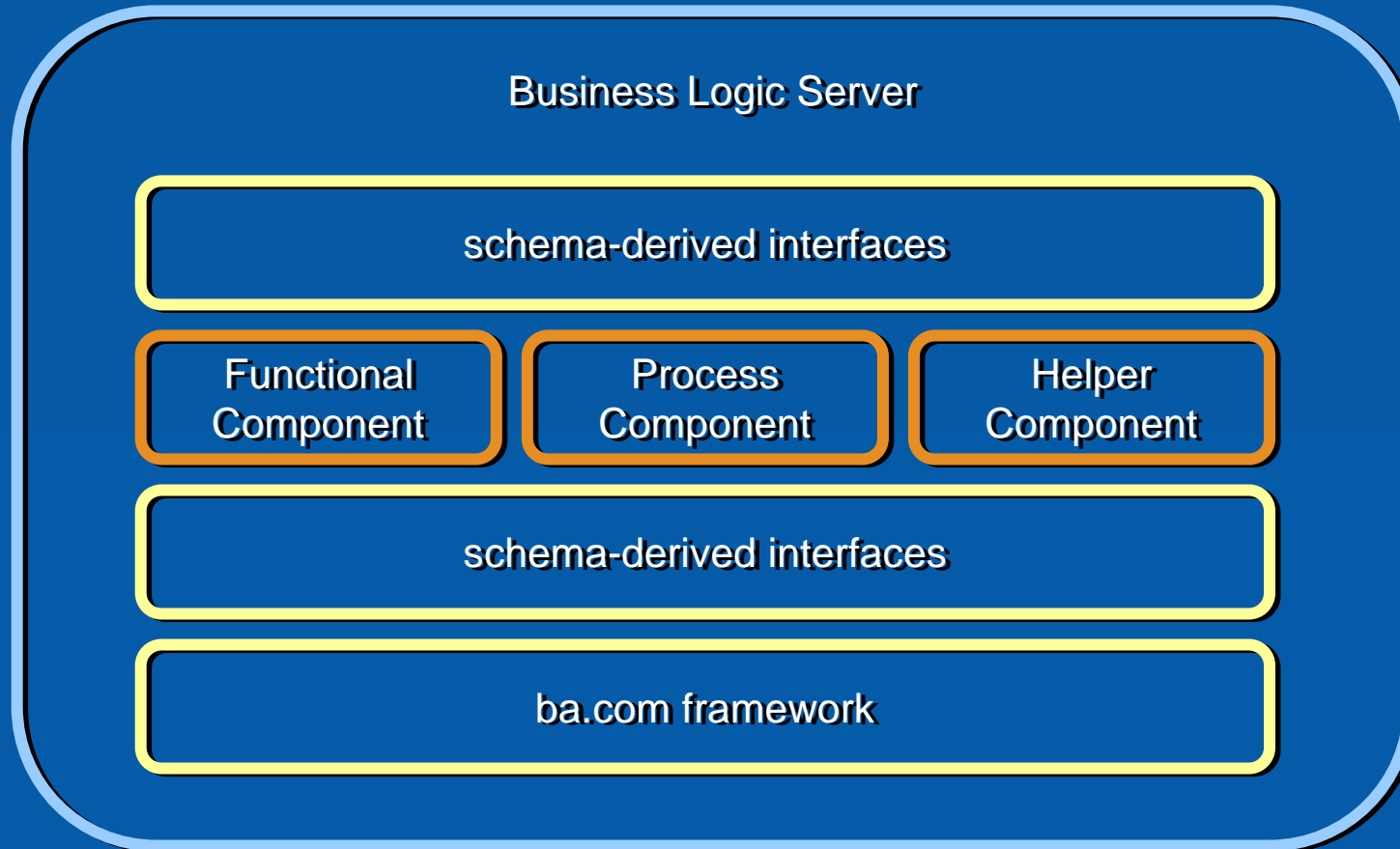
# ba.com logical architecture



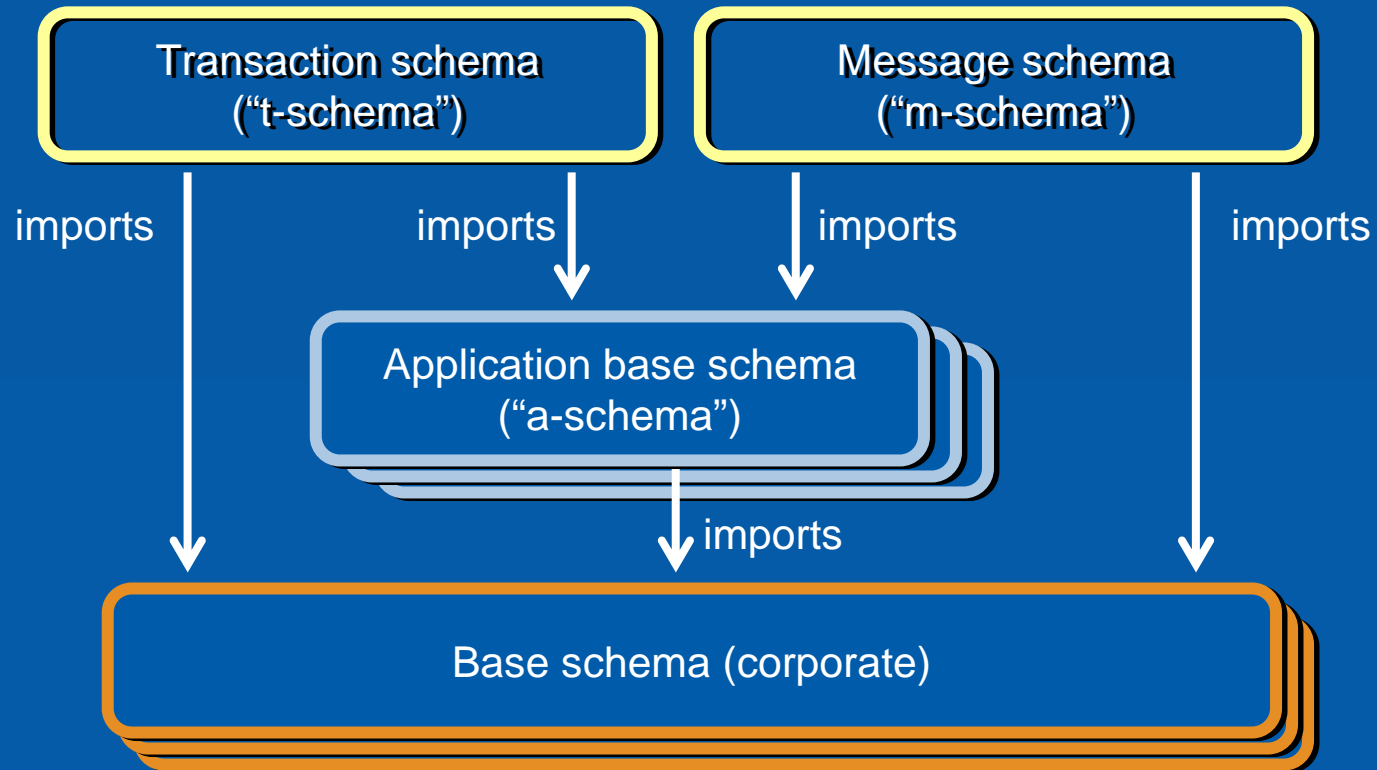
# ba.com domains



# ba.com: inside the BLS

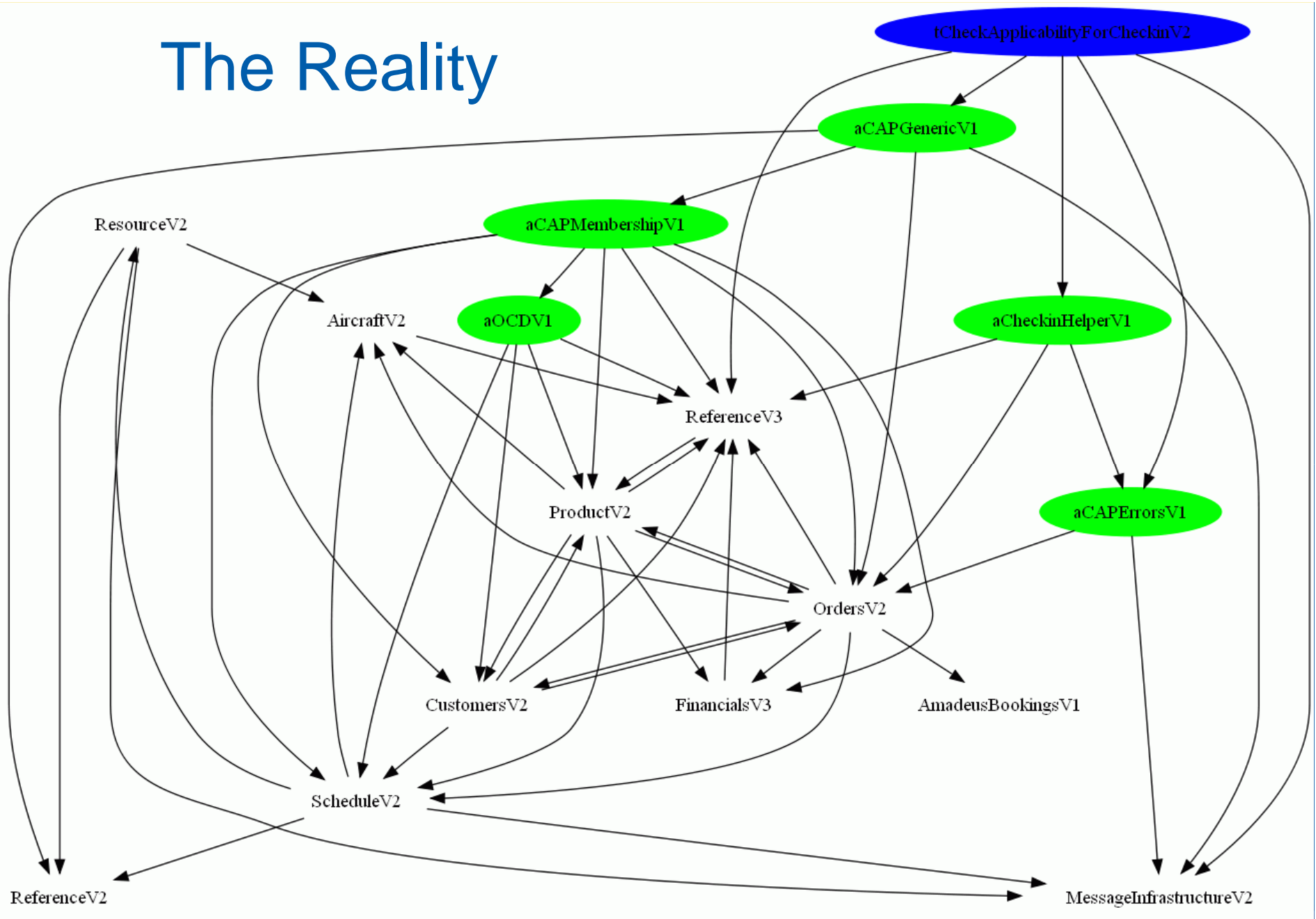


# Schema in principle





# The Reality



# Where do we want to be?

- More able to respond to business change
  - Speed and agility in providing new business capability
- Reduced cost of change
- (Still) robust and secure



# People we talked to said ...

Even [huge company] don't have this many [schema] – in their entire business

*Steve Jones*

Think about the existing, paper-based interfaces in your business

*Arjen Poutsma*

[Famous high-volume online retailer] pass references and do hundreds of look ups per page

*Steve Jones*

Oh...  
***boarding passes***  
– we get it!

*Us...*



# Target services architecture

## Products and Services

Composite Searches	Override Pricing	Product Reccs.
Flight Priced Availability	Ground Priced Availability	Schedule
Product Catalogue	Fit/Grnd Packaging	

## Order Management

Create/Update	List/View
Merge/Split	Order Integrity
Shopping Cart	Non Core Mgt

## Customer Interaction Management

Interaction Mgt	Identify Mgt
Case Mgt	Collaboration

## Payment

Payment Method	Authentication & Authorisation
Billing & Settlement	

## Customer Account Management

Profile	Membership
Miles & Points	History



Business Services Layer

# Challenges

- Does this mean every element in a document is optional?
- How do clients know how to use the service?
- Does it mean that we pass large amounts of data to operations that don't need it?



# Realising the ideal

- Integrate the **proposition**
- Work out the **process**
- Train the **people**
- Find the **tooling**



# plurum

- Internal beta
- **plurum** is a small tool which you can use to create manageable and usable interfaces for Document-based Services
- **plurum** runs as a stand-alone command line tool...
- ... and will eventually offer integration with Spring Web Services



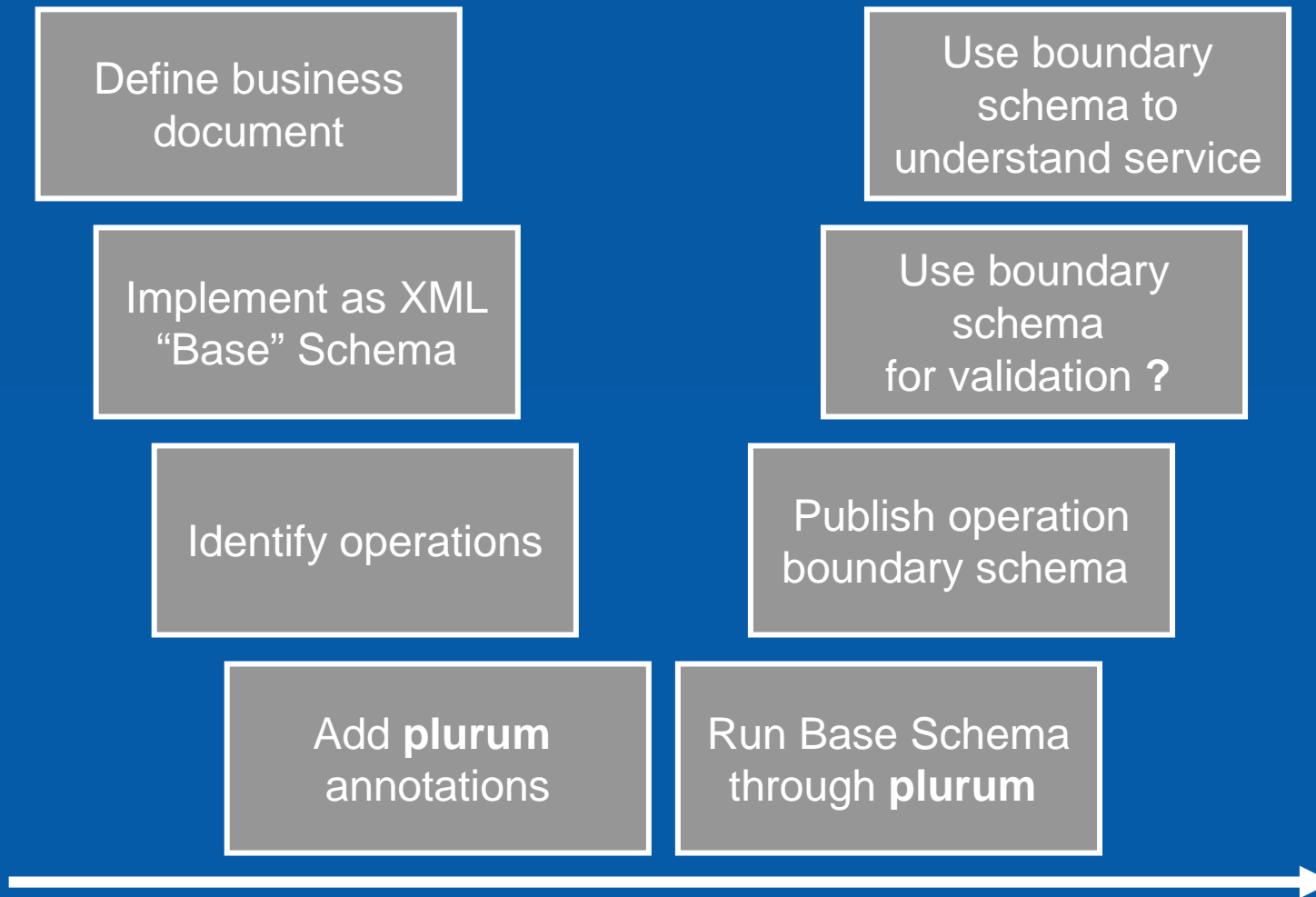
# the problem **plurum** solves

- **plurum** defines annotations for XML Schema
- **plurum** lets you specify **requirements** (for inbound messages) and **guarantees** (for outbound messages) to make your clients' lives easier and your service more usable





# the plurum workflow



# add plurum annotations

```
<schema targetNamespace="..."
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:plu="...">
  <annotation><appinfo>
    <!-- Define the operations -->
    <plu:operations>
      <plu:operation>acceptPassengers</plu:operation>
    </plu:operations>
  </appinfo></annotation>

  . . .
</schema>
```

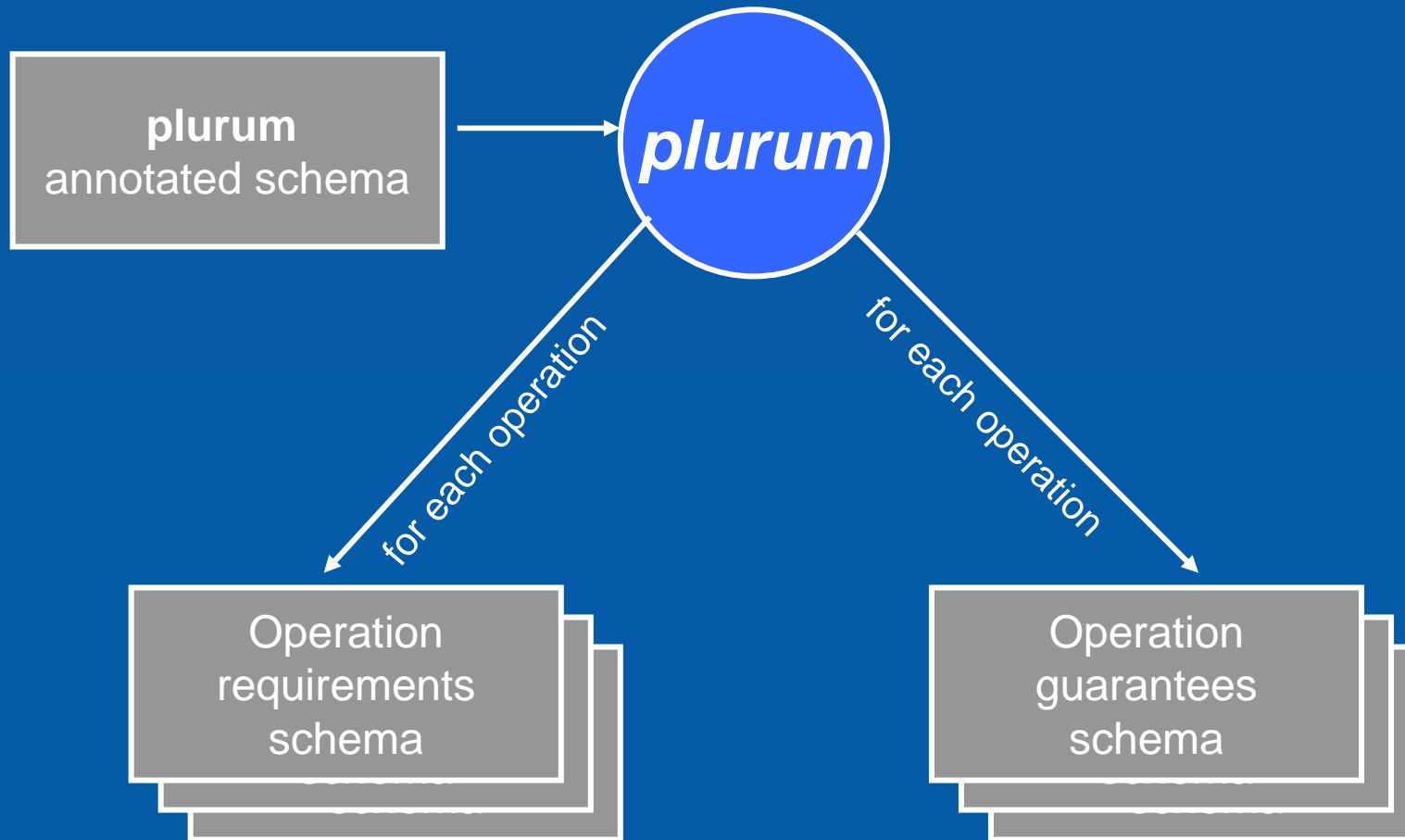


# add plurum annotations

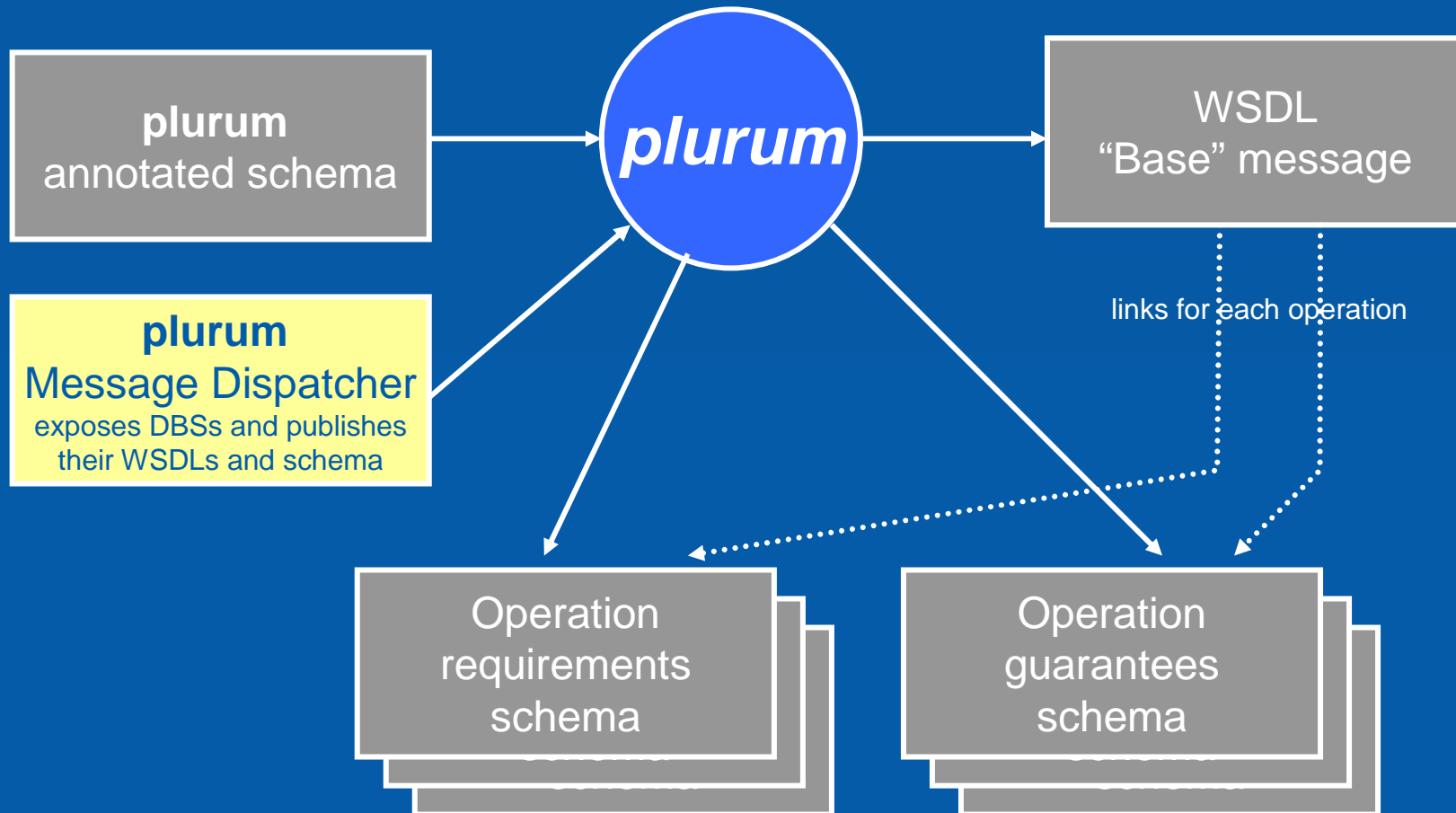
```
<complexType name="FlightPassenger">
  <sequence>
    <element name="SeatNumber" minOccurs="0">
      <annotation><appinfo>
        <plu:Derivation>
          <plu:Context operationName="acceptPassengers">
            <plu:Guarantee
              minOccurs="1"
              reason="Operation supplies seat number" />
          </plu:Context>
        </plu:Derivation>
      </appinfo></annotation>
    </element>
```



# how plurum works



# plurum Spring WS integration



# There's still much to do

- Complete development and testing of plurum
- Proof of solution
- Migrate ba.com
- Post component-based development
  - Refine Governance
  - Implement Caching
  - Extending use of Spring
  - Parameter & reference data



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