

## Unblocking the EAI/SOA Drains

Enterprise Application Integration (EAI) using a Service Oriented Architecture (SOA) is a hot topics in information technology architecture around the world. Companies from Microsoft to Tibco and even the UK Government have invested major sums of money in products to support EAI and SOA.

In a nutshell EAI/SOA architectures can be summarised as:

- A strong distributed heterogeneous architecture
- Mostly based on message handling software backbones
- Used to deliver widespread (and normally asynchronous) application integration
- Drives towards a federated database schema and canonical data model

Its advantages are:

- More elegant structure with applications all talking to each other over a common messaging platform using standard message and data structures
- Development of a 'plug and play' approach to applications and data that integrate to the backbone via standardised interfaces ('adaptors' in EAI/SOA-speak)
- Efficient data translation between applications and data sources
- Stability of corporate messaging and data structures over time
- Lower costs of long-term architecture support (potentially)
- Weaker binding of organisations to their application suppliers (increased buyer power- again potentially)

The key assumptions in the EAI/SOA model are crucial to the technical and economic viability of the approach in the real world, these are:

- A comprehensive (if not complete) data model for the enterprise is available
- Application adaptors are (or can be made) available to link the applications into the architecture
- The physical topology of the system (especially the geographic disposition of the applications and data sources) are compatible with the systems requirements of an EAI/SOA
- The majority of the messaging of the architecture will be asynchronous

So why is the uptake of EAI/SOA so slow both for new systems and existing solutions? Well the answer is simple to understand but difficult to solve: the assumptions stated above generally don't hold true for most situations.

Lets take a look at what goes wrong:

### Data

The Project Factory works in both the public and private sector on projects of all scales from small systems to those of several thousand servers and applications. However, it is rare for any organisation to have even an approximation to a data definition for its key applications and enterprise data. It is common for organisations to go forward with major systems projects (including EAI/AOA) without appreciating or (budgeting for) the significance of this crucial item.

### **Adaptors**

Applications have to link to your SOA, in an EAI backbone this is done by the development of an interface known as an adaptor. Adaptors range from the specific to the general and from the crude to the sophisticated. Few Commercial Off The Shelf (COTS) applications come with ready-made adaptors and even fewer with sophisticated general purpose ones. Furthermore there is a real resistance to adaptor development by many COTS suppliers.

### **Topology**

I often feel like the ship's engineer Scotty from Star Trek; constantly having to remind people that we can't change the laws of physics in general and specifically the speed of light! People buy buildings, often in the strangest places and put computers in them, the fact that data has to be propagated around these seems to get missed out in the "property-fest".

For systems that need very fast responses, the physical location of the systems is vital, if its more the 50 km, your definitely in heavy seas!

### **Messaging**

Messaging solutions and SOA work best for asynchronous messaging. That's not to say that they can't handle synchronous data, but they don't do it as well (and some EAI products do it badly). Lots of people seem to have difficulty with what parts of their system must be synchronous and which need to be asynchronous. For some situations (such as streaming media) then messaging is completely the wrong technology. The implication is that there tend to be few pure EAI/SOA solutions- mixed architectures are here to stay.

### **What buyers can do**

Now I'm no doom-and-gloom merchant. I do believe that SOA in general and EAI in particular are the right long to mid term direction for most organisations. So what can the buyers in application-user organisations do to improve the situation?

- Firstly put pressure on the IS/IT area of your business to get their house in order, the lack of a data model for core, mission critical enterprise data is simply unforgivable.
- Secondly get a definition of the mid to long-term IS/IT strategy from your IS/IT team that defines the corporate position on EAI and SOA including the EAI backbone products that will be used.
- Thirdly, if your business is going down the EAI route, then ensure that in all invitations to tender you define this and insist that COTS vendors will provide you with the appropriate adaptors at a reasonable cost and in a timely manner
- Last, ensure you talk to you existing suppliers and get them on side, ideally committing themselves to the provision of adaptors at a reasonable cost and in time to support your EAI plans.

### **What suppliers can do**

Suppliers have to understand that the approach of:

*"We wont"*

or

*"We can hold the client to ransom"*

Is both unprincipled and guaranteed to backfire in the mid-to-long term. At The Project Factory we have several clients who, faced with unreasonable and intransigent COTS

vendors have thrown their products out in favour of more supportive suppliers who will provide appropriate adaptors at reasonable (or no) costs and in a timely manner.

Too often suppliers have unfounded fears that by allowing other applications to connect to them via an EAI bus, they are weakening their commercial position or putting their application at technical risk. I can certainly say that the second can be completely avoided if the adaptors are properly designed and implemented and the first is simply paranoia.

Make your application easy to connect to and you move it higher up the client's strategic value-chain.

### **What architects and designers can do**

Be realistic. In the real-world idealism and perfect designs are great principles to guide you but remember:

- The client's best interest must be paramount. It may be that, good idea as it is an EAI/SOA may still be some considerable time away for the client depending on their exact circumstances
- Be commercially realistic about what can be achieved and when. Even the largest organisations have only limited leverage with their COTS suppliers and even when these negotiations succeed the COTS suppliers need adequate time to design and deliver the adaptors
- Emphasise the need for clients to invest in (and keep up to date) a data model for core, mission critical enterprise data. We use our trademark I-Valuate™ method for this but however you approach it, make sure your client understands:
  - Which are the critical data items for their business
  - The cost of this data and the cost of it's maintenance
  - The importance of the task of keeping the data model up to date
- Work with COTS vendors to ensure they are brought inside early in the project life so that the need for adaptors and for their more general involvement does not come as an unwelcome surprise to them.

### **An example**

One of our clients had 22 COTS applications running in 16 platforms using 5 different operating systems and supporting over 100 point-to-point bespoke connections between these applications. They had been encouraged and budgeted to use an EAI product to replace these p2p connections.

Unfortunately they hadn't approached the COTS vendors prior to project kick-off, they had bought the EAI package and platform to run it on and had people trained in development and systems management of the EAI package.

When they talked to the COTS vendors, things got sticky:

- 3 wouldn't responds at all to requests for a discussion on Adaptors
- 8 would provide (or already provided) EAI adaptors for this bus technology either at no cost (or minimal) cost
- 7 offered to discuss the situation, would develop at cost but timing was a problem
- 3 wanted fees more than 50% of their original licence price for each adaptor development

The Project Factory's team helped negotiate with the suppliers and moved 2 of the 'bandits' to a more reasonable position. The remaining bandit's system was thrown out and a replacement procured from a more cooperative supplier.

We helped the client focus on the achievable elements of the solution and move their expectations from a 1 to a 3 year horizon, for two reasons:

- 1- They had to develop an appropriately detailed data model
- 2- 9 suppliers needed to develop adaptors needed a 2 year timeline to deliver against

The project continues to deliver good EAI/SOA results, performance and ongoing operating savings.

### **Conclusion**

EAI and SOA are strong architectures that disaggregate the component parts of an enterprise solution across systems and networks, joining these with a common messaging and data architecture. This change is fundamental and good reasonable judgement needs to be applied when considering and planning such projects.

It is essential to:

- 1- Develop an IS/IT strategy and ensure your procurement team are aware of its implications for procurement terms and the context within which systems and solutions are defined and procured and for supplier relationships.
- 2- Define a comprehensive model of corporate data, this is crucial not just for EAI/SOA projects but for any IS/IT project and this data should be treated like any other asset of the business- costed and budgeted for in maintenance terms.
- 3- Don't rush into EAI projects, take advice from experience practitioners that have undertaken work of this nature before and get the foundations of the project right.

### **About The Project Factory**

Cliff Leach is a Director of The Project Factory Limited

The Project Factory are specialists in the inception, design and management of projects especially in the context of EAI/SOA.

With many years experience in all levels of SOA and EAI projects they are specialists in supporting clients through to successful end results.

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