

# The OpenDX Initiative

Steve Hawtin, Technical Director, Oilfield Systems

POSC Workshop

Houston, May 1999

- The need for OpenDX
- BHP's use of DAEX
- Break
- The OpenDX Initiative
- Questions

# Data Management Goals

- "Best of breed" v "Integrated Solutions"
- "Corporate" v "Project" Stores
- "Wouldn't it be great if we could run Landmark applications off GeoQuest datastores and vice versa"
- Dumping data out to archives and external consumers
- Linking to marginal products
- Data cleanup and quality control
- Extracting meta-data

## The end user's view

End Users perceive little benefit from  
Data Management expenditure

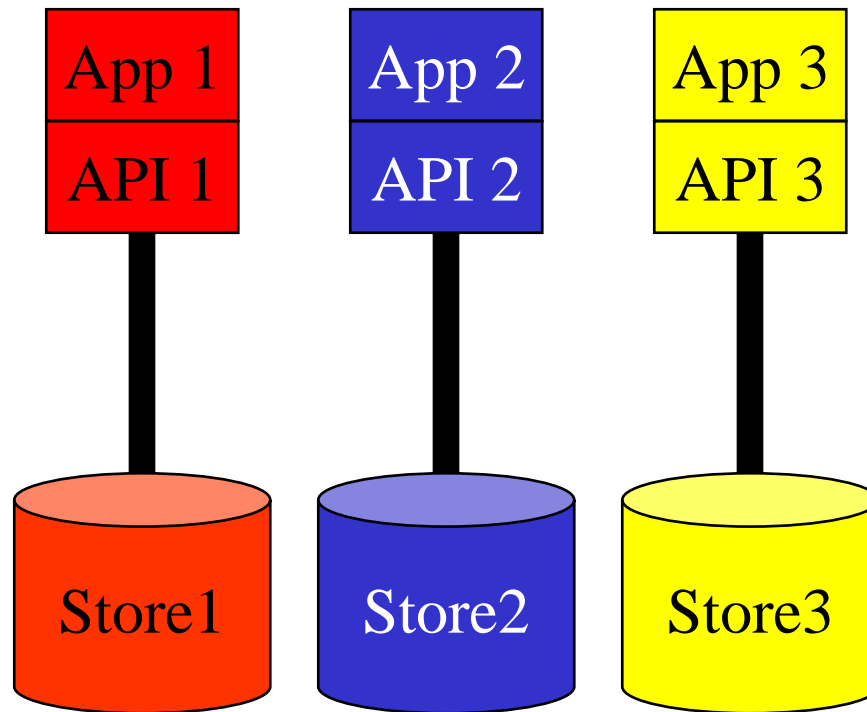


**“When you’re up to your neck in alligators it’s hard  
to remember that you set out to drain the swamp”**

# Take a step back

- What is the main concern?
- Focus on the end-user
- The goal is “Application Integration”
- Review approaches

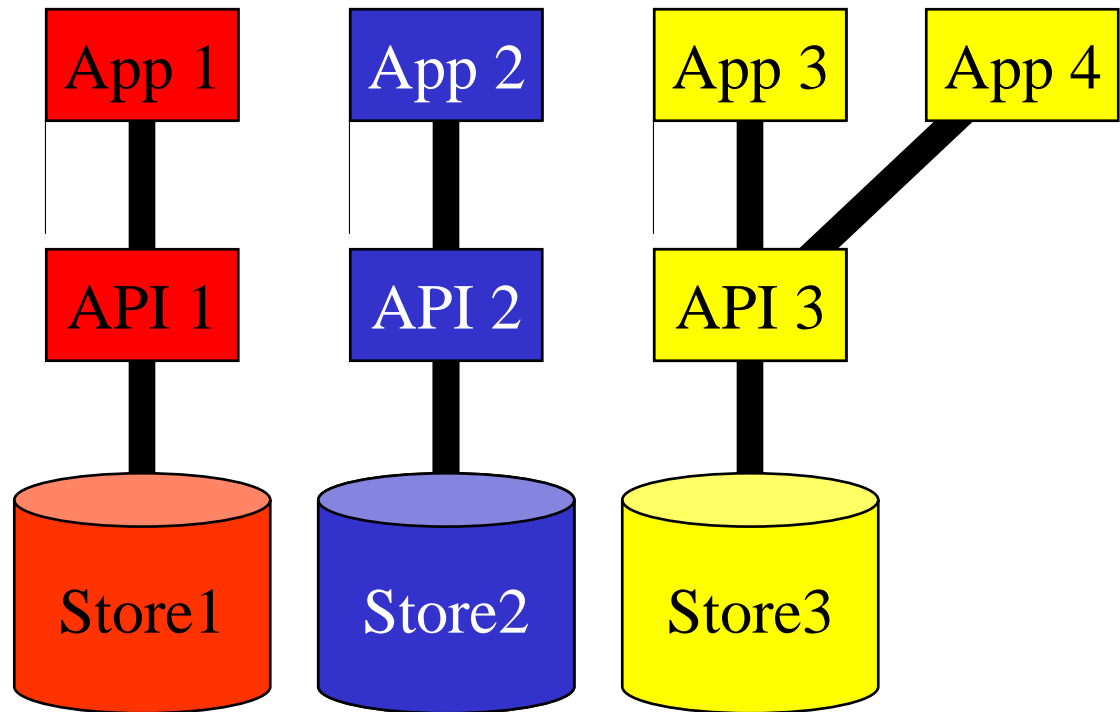
# The Starting Point



## *Everybody c 1985*

- Separate Applications
  - Different Users
  - Different Systems
  - Islands of information
- Inconsistent data

# Separate API

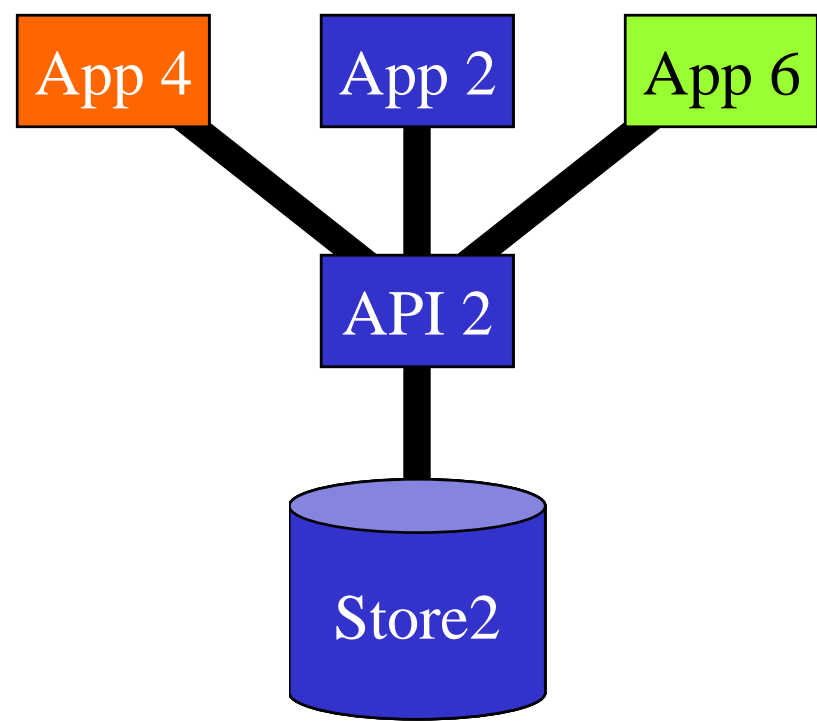




## *Everyone c 1990*

- Higher level view of data
- Simplifies the creation of Applications
- Separate Disciplines
  - Multiple applications within each discipline
  - Islands of data within each discipline
- No Integration between disciplines

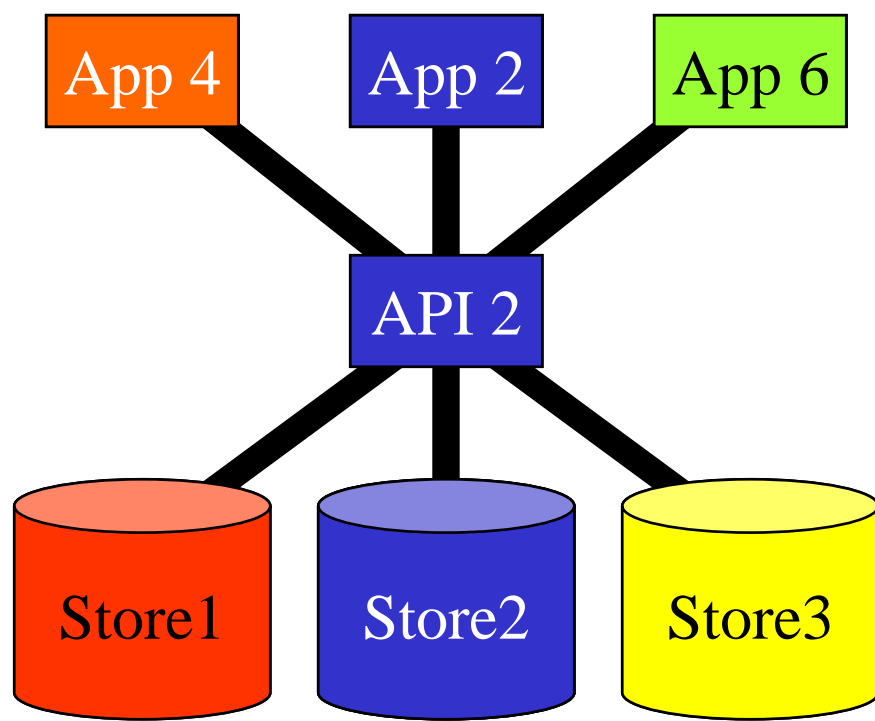
# Single Datastore



# Single Datastore

*Tigress/ PDS (Robertsons/ PGS), PPDM,  
ObjectSIP (Prism), Epicentre c 1993 (POSC),  
EpicentreAccess/ LiteSIP (Prism), OpenWorks  
(Landmark), GeoFrame (GeoQuest)*

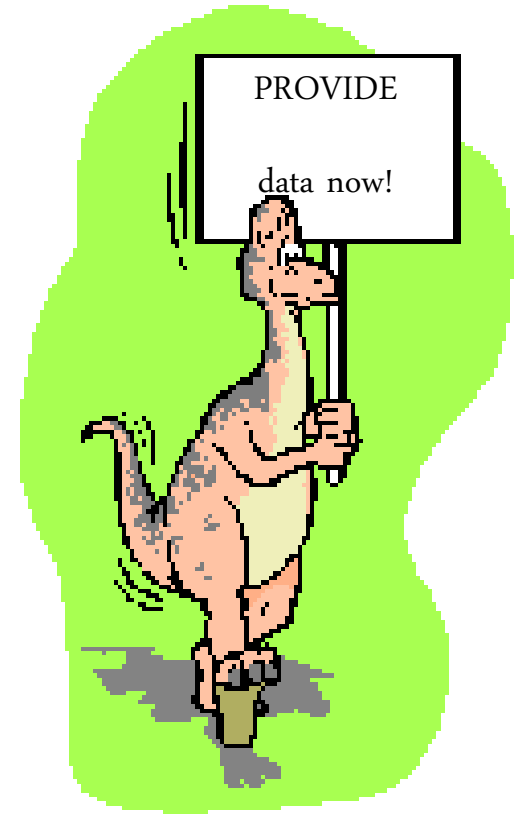
- Single Authoritative datastore
- Don't maintain multiple copies
- Build new applications



*Epicentre (POSC),  
UniSQL-M (UniSQL), Open Extender  
(Mincom), OpenSpirit (Shell/ Prism)*

- Keep data in separate datastores
- Consistency of identifiers
- Limited reuse of old applications

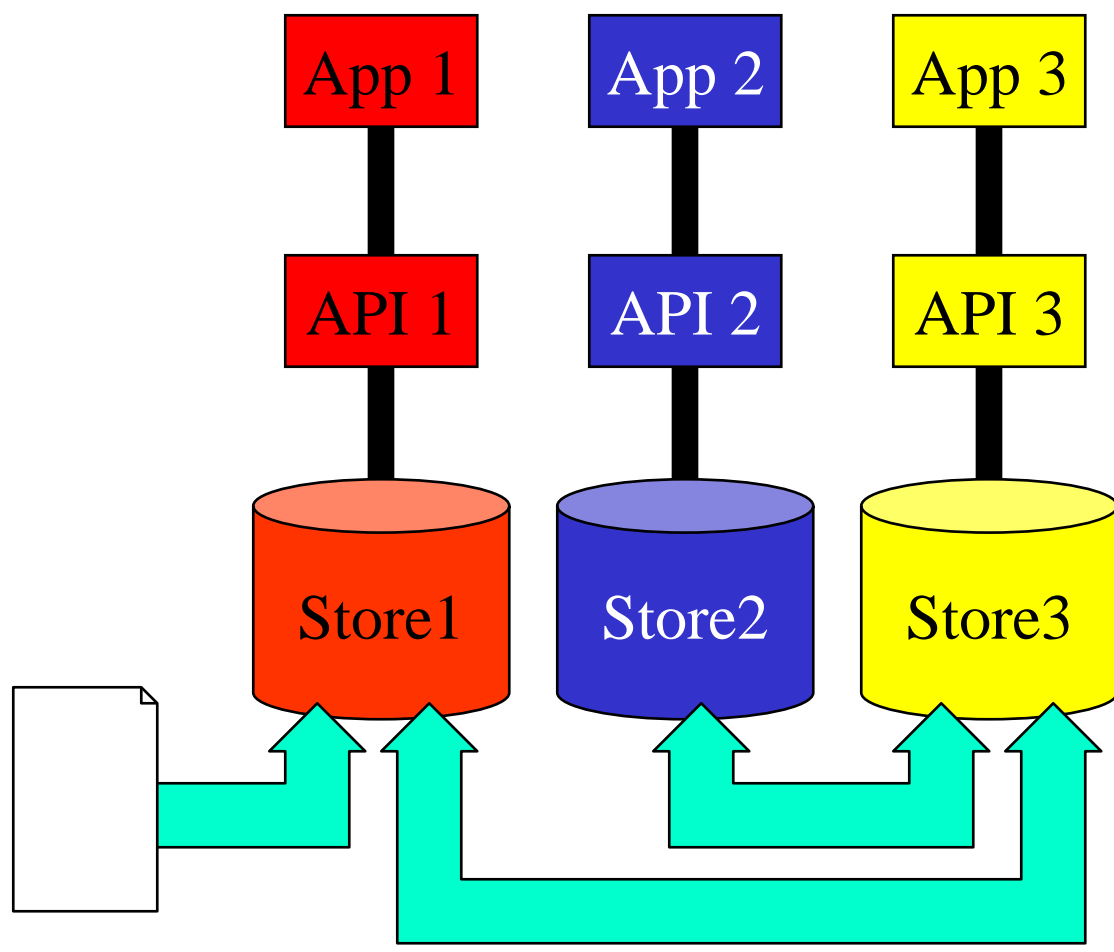
- Users cannot wait
- Data duplication
  - Information Exchange
  - Maximise the value
  - Application Integration is **not** the whole story
- The goal is  
    **“Business Process Integration”**



# Business Process Integration

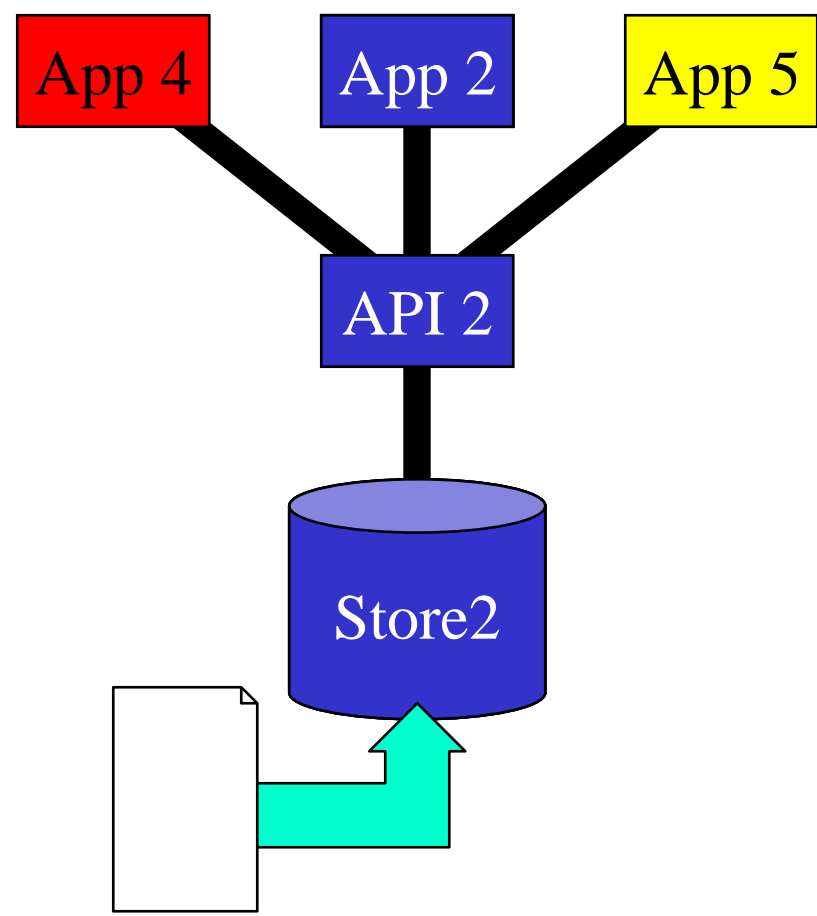
- Allow all the steps to communicate
  - Shared identity...  
...not necessarily shared data
- Some steps are not applications
- Reduce friction at the sticking points
- Pragmatic approach
  - Adaptive Process
- Vision of a final system

# Transfers Between Disciplines

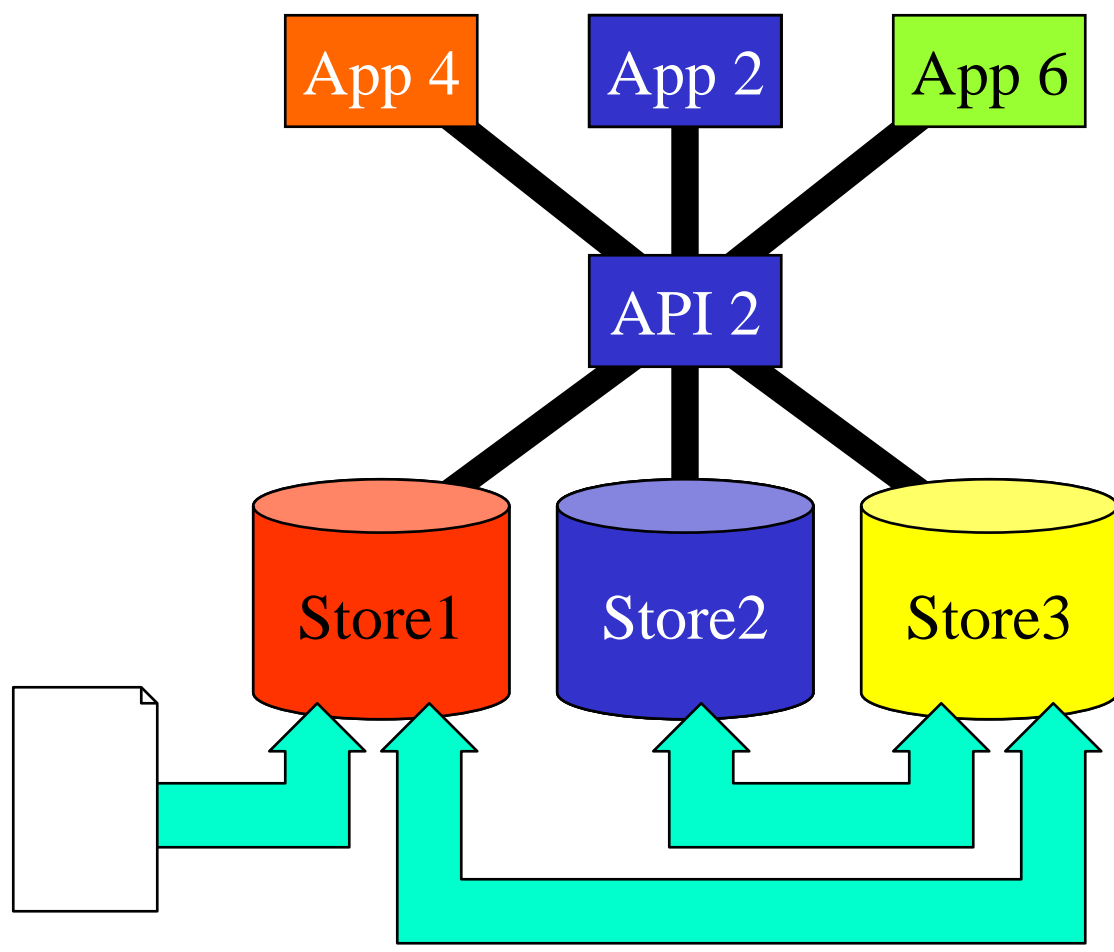




# Import and Export



# Consistent Identifiers

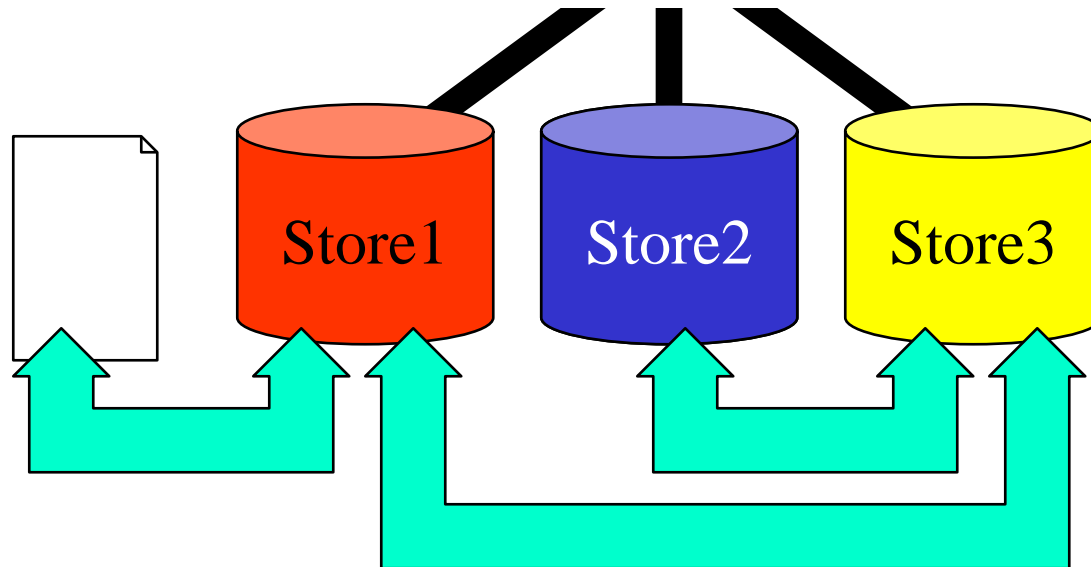


# Information Exchange

- Transfers of information between stores
- Is being used **today** to achieve  
“Business Process Integration”
- Will continue to be a key element for the foreseeable future
- Is independent of  
“Application Integration”
- Strategies for Information Exchange

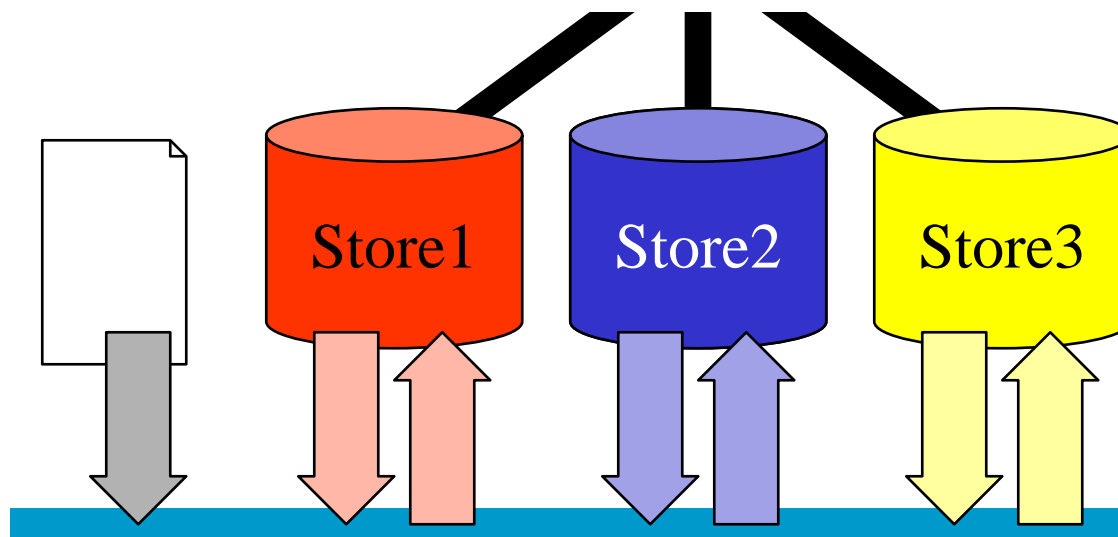
# Strategies For Information Exchange

- Point to Point
- Data Bus
- Component Based



## *Everyone*

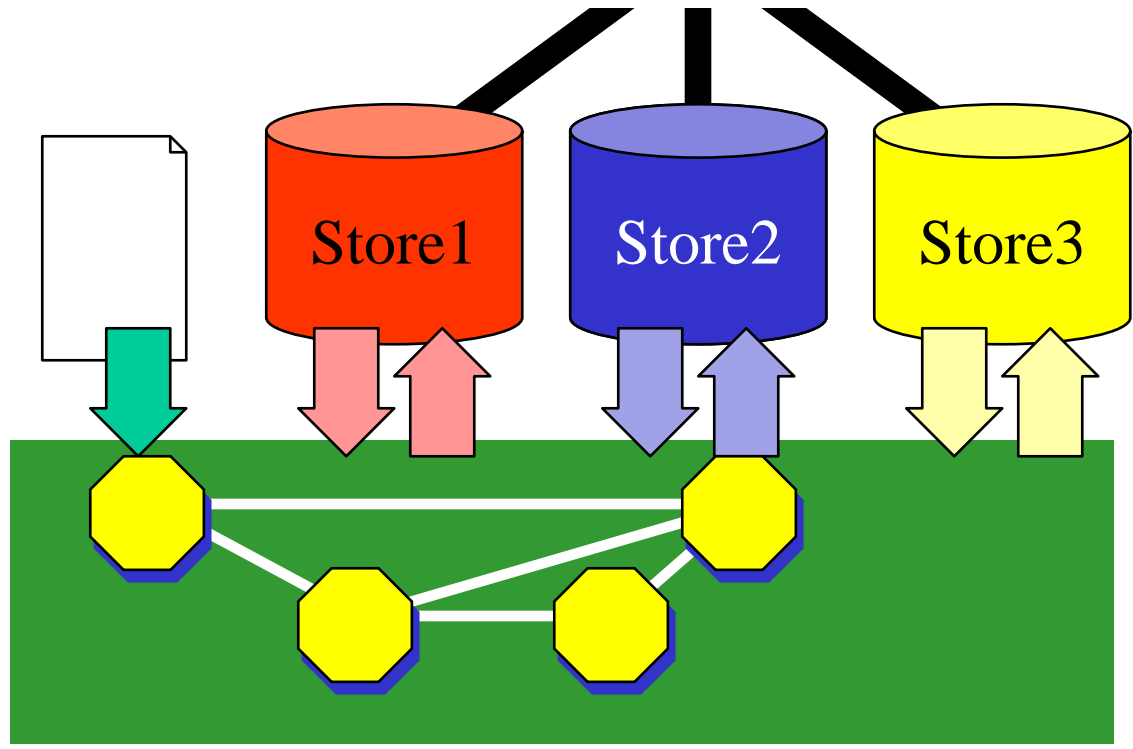
- Hand-coded
  - ASCII/ SQL/ C
- Easy to build something quick...
  - ...difficult to create something complete
- Hard to maintain



*Geoshare (c 1994), PEF*

- Common Format
- Footprint issues/ pairwise testing
- In reality half-links are not directly reusable





*DAEX (Oilfield Systems), Geoshare (eg GCTC),  
GeoBASIC (ICS)*

- Reusable Elements
  - Matched to “Business Processes”
- Common Services
  - User Interfaces/ Audit Trail/ Remote Running
- Repackage existing links
- There are no silver bullets (still)

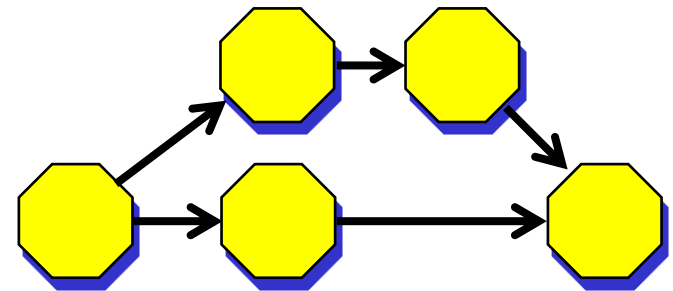
# Component Based Systems

- Clear identity and purpose
- Independence from other components
- Accessed only via interfaces
- Physical implementation hidden
- Separate the "what" from the "how"
- Sustaining Infrastructure

"Component-Based Development: Application Delivery and Integration Using Componentised Software", Butler Group, September 1998. ([www.butlergroup.com](http://www.butlergroup.com))

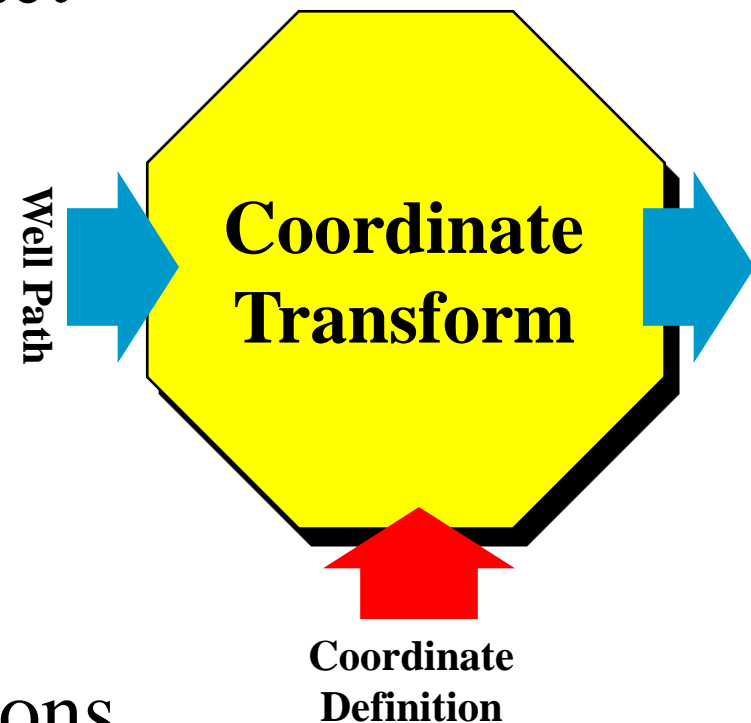
# DAEX...a component-based solution

- Addressed customer needs
- Design introduced in 1997
- Enthusiastic uptake
- Provides encapsulation of components
- Flexible enough to cope with the wide variety of exchange challenges



# What is a DAEX Component?

- Implements a “step” of the process
- The Builder’s Contract
  - Specified Interfaces
    - Inputs
    - Outputs
  - Defined Behaviour
  - Configuration
- Implementation Options



- ✓ Clear identity and purpose
- ✓ Independence from other components
- ✓ Accessed only via interfaces
- ✓ Physical implementation hidden
- ✓ Separate the "what" from the "how"
- ✓ Sustaining Infrastructure

- Not just end-users
- End-User
  - Just do it
- Integrator
  - What are the steps
- Component Builder
  - Develops software to carry out the steps

# The End-User's Vision

- Easy to use
- Hide irrelevant detail
- Understandable reporting
- Single contact point



# The Integrator's Vision

- Clear Component Specification
  - Easy to test
- Lots of components
  - Variety of sources
  - Options for maintainence
- Sources of experience
  - Other Integrators
  - External Solution Providers

# The Component Builder's Vision

- Clear Component Specification
  - Easy to test
- Implementation options
  - C++, Java, Perl, C, SQL, csh...
  - GeoBASIC, Data Mapping Languages...
- Sources of experience
  - Community of developers
  - Example source
  - Cooperative development

- Provides a good start
- Industry-led initiative to focus activity on the enlargement and deployment of this proven component-based technology
- DAEX Customers want activities focused

- Sustain a community of Integrators and Component Builders
  - Provide a meeting place
  - Spread best practice
  - Lower barriers to entry
- Build an open market for components
  - Inform what is available
  - Encourage Component Builder Tool creators
  - Co-ordinate component creation

- Application Integration v  
Business Process Integration
- Data Exchange Strategies
- The Vision of the Ultimate Exchange
- DAEX
- OpenDX

...time for  
a break



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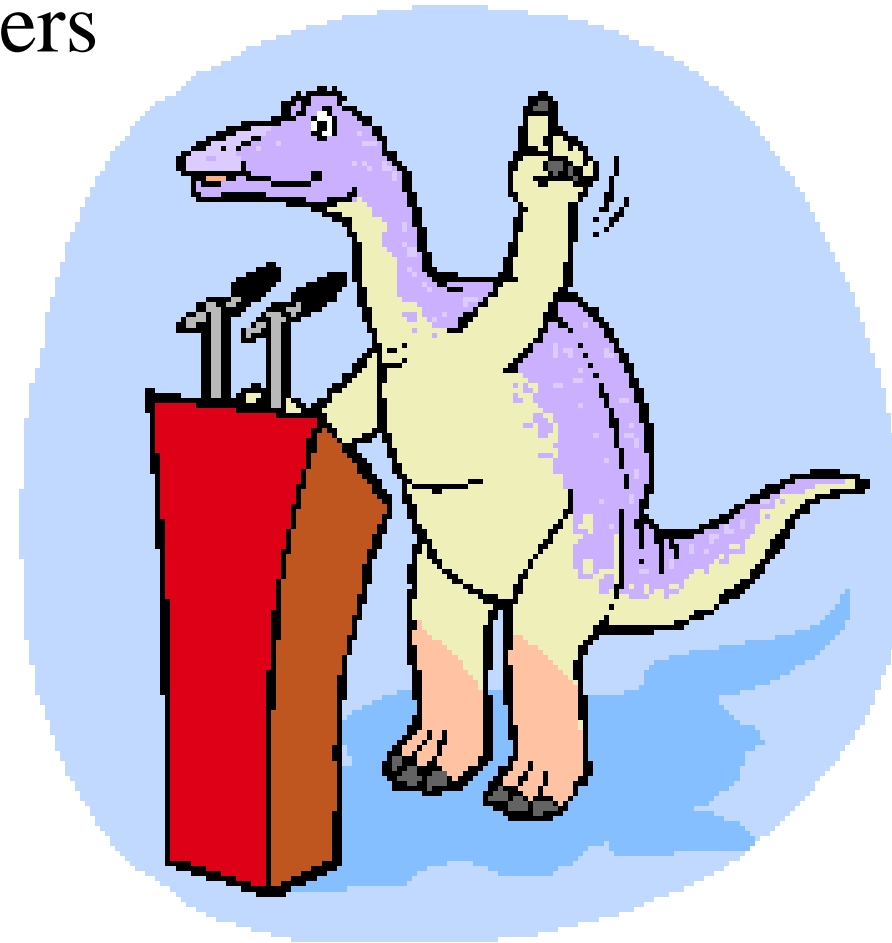


# Provide a meeting place

- Forums for:
  - End-Users
  - Internal Integrators
  - External Integrators
  - Component Builders

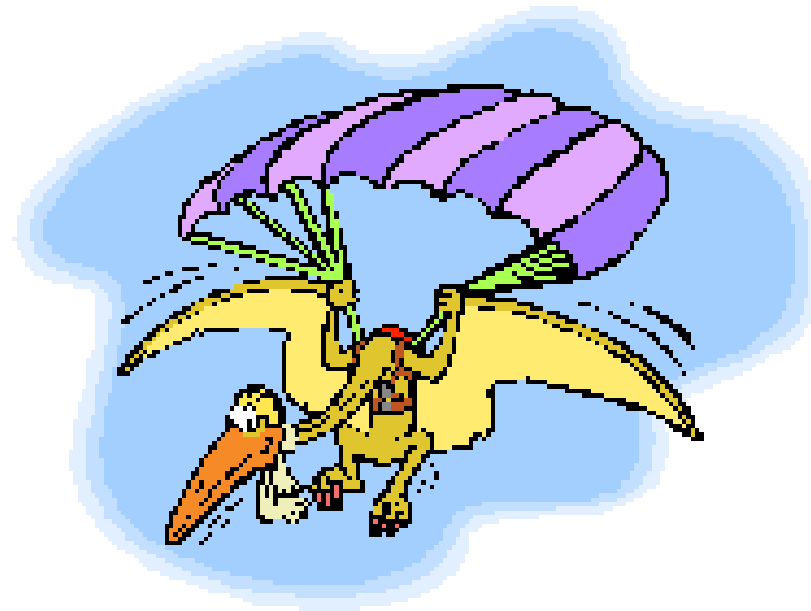


- Component Builders
  - Training
  - Development Tools
  - Source Code
- Integrators
  - Training
  - Hints and tips
  - FAQ



## Lower barriers to entry

- Simplify component creation
- Fast-track training
- Support group
- Provide channels to the customers
- Publicise services
  - Perform transfers
  - Provide Turn-key Solutions
  - Administer for customers
  - Maintain components



# What is available

- Components
- Data interfaces
- Contacts:
  - Service Providers
  - Component Suppliers
  - External Integrators
  - Administrators



# Co-ordinate Development

- Company specific development
  - Special data stores
  - Special requirements
  - Special processing
- Co-ordinate with other developers
  - Project structure
  - Source code control
  - Data interface definition



- Families of interfaces:
  - Epicentre
  - Geoshare, PPDm, OpenWorks, GeoFrame
- Controlled by developers
- An evolutionary approach
  - Active definition
  - Being prescriptive does not work
- An open market for interfaces

- Forums
- Contacts Registry
- Component Registry
- Component Source Code
- Interface Definitions
- For more info see: [www.opendx.com](http://www.opendx.com)

- Oil Companies
- Application Vendors
- Component Developers
- Service Providers
  
- Tiered
  - Associate
  - Full
  - Extended



# Interested Companies

- Anadarko
- Aramco
- Arco
- BHP Petroleum
- BP Amoco
- Chevron
- Elf
- Marathon
- PGS
- POSC
- QC Data
- Saga Petroleum
- Spirit Energy
- Statoil
- UK DTI
- Vastar
- Veba Oil
- Z&S GEOScience

- Sustain a community of Integrators and Component Builders
  - Provide a meeting place
  - Spread best practice
  - Lower barriers to entry
- Build an open market for components
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Questions?

