Versatile Web Client Design

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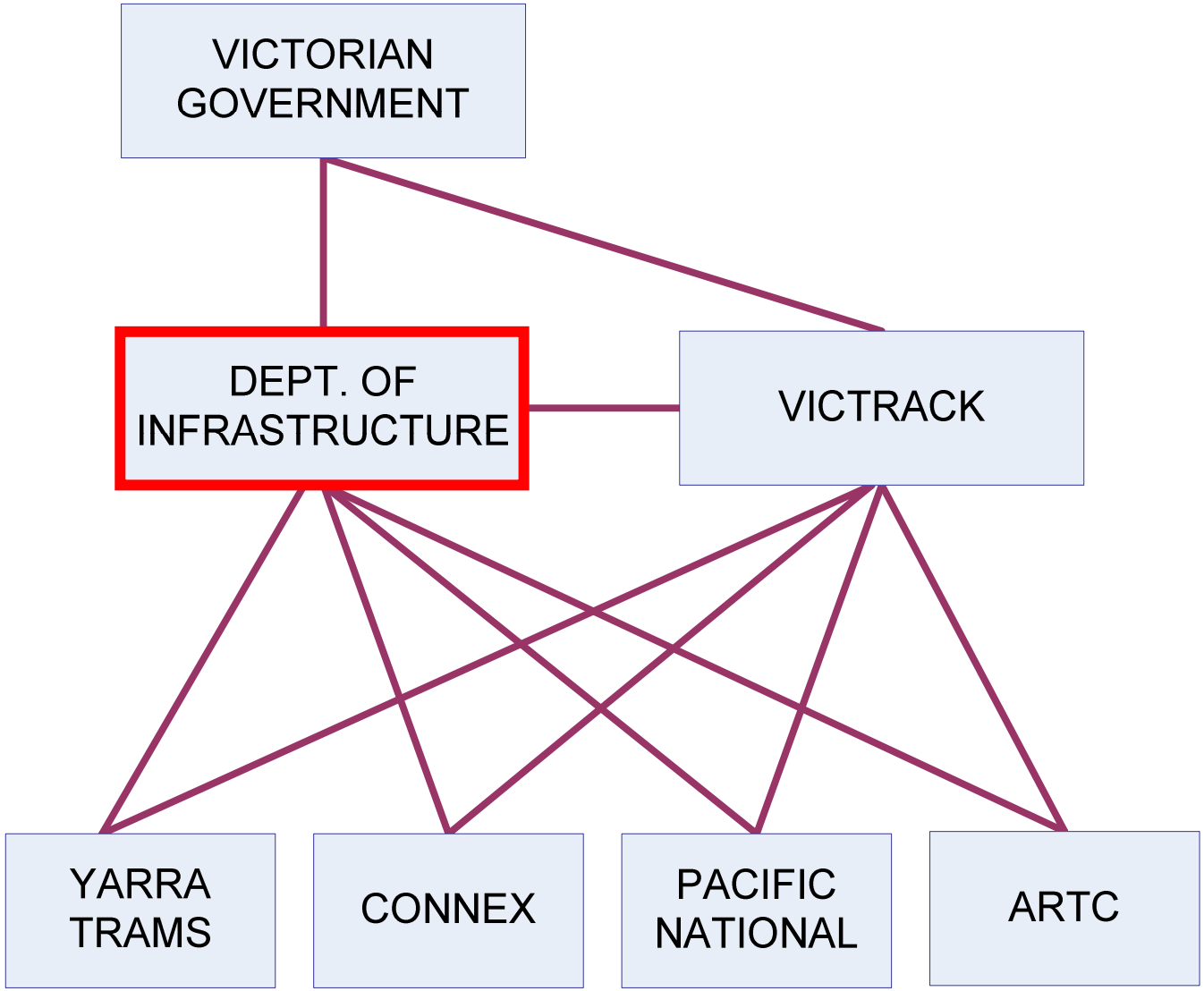
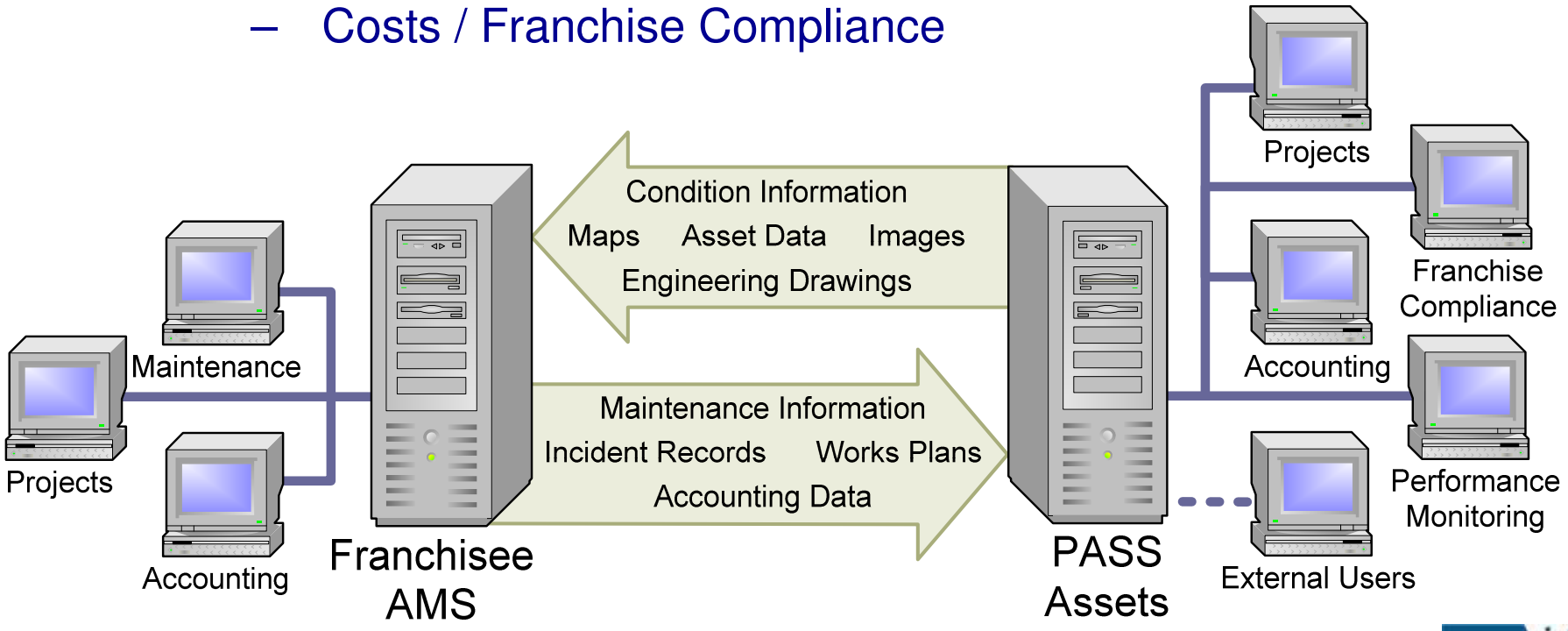


PASS Assets System History

- PASS – (Privatised Arrangements Support Systems)
- PASS Assets Evolution
  - Condition Database (July 2001) Terminated due to lack of agreement on statistical methodologies
  - Accounting Application (Dec 2002)
  - Data Collection methodology lead to Geospatial Asset Register (Dec 2003) both Train and Tram
  - Web Delivered GIS (2004/2005)
  - Public Transport Information Portal (2005/2006)

Integration with Franchisee Systems

- Integrate with Franchisee's Asset Management Systems (AMS)
  - Maintenance Planning / History
  - Costs / Franchise Compliance



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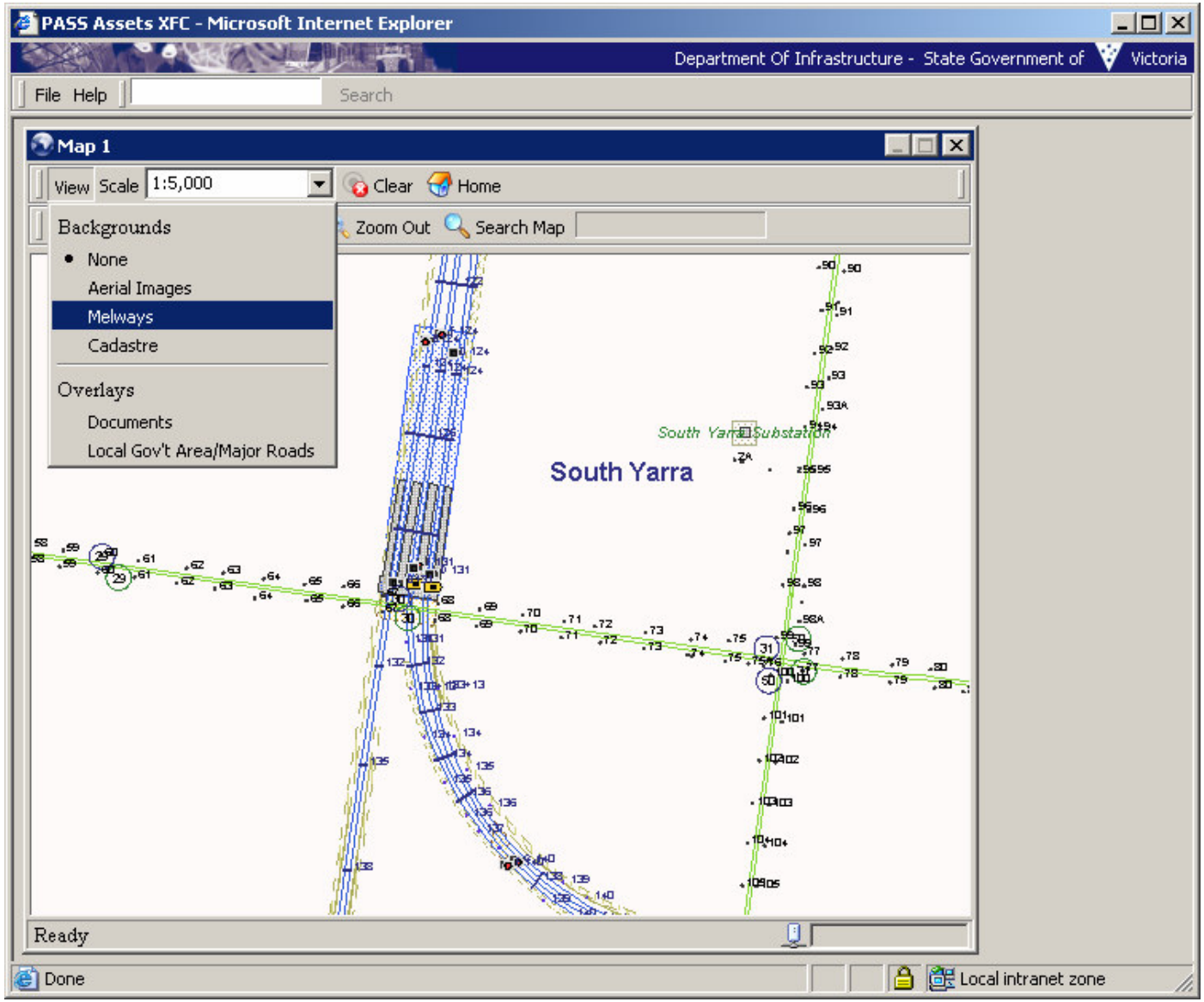
Intelligent Data Model

- Linear Network
  - Kilometrage
  - Topology
  - Network Tracing
- Asset History
  - Planned / Live / Disposed
- Inbuilt Quality Assurance Procedures
- Audit Trail of Data Edits

PASS Assets – Web Client



- Web Client
- Windows like application
- Move / Resize
- Zoom In / Out
- View Backdrops

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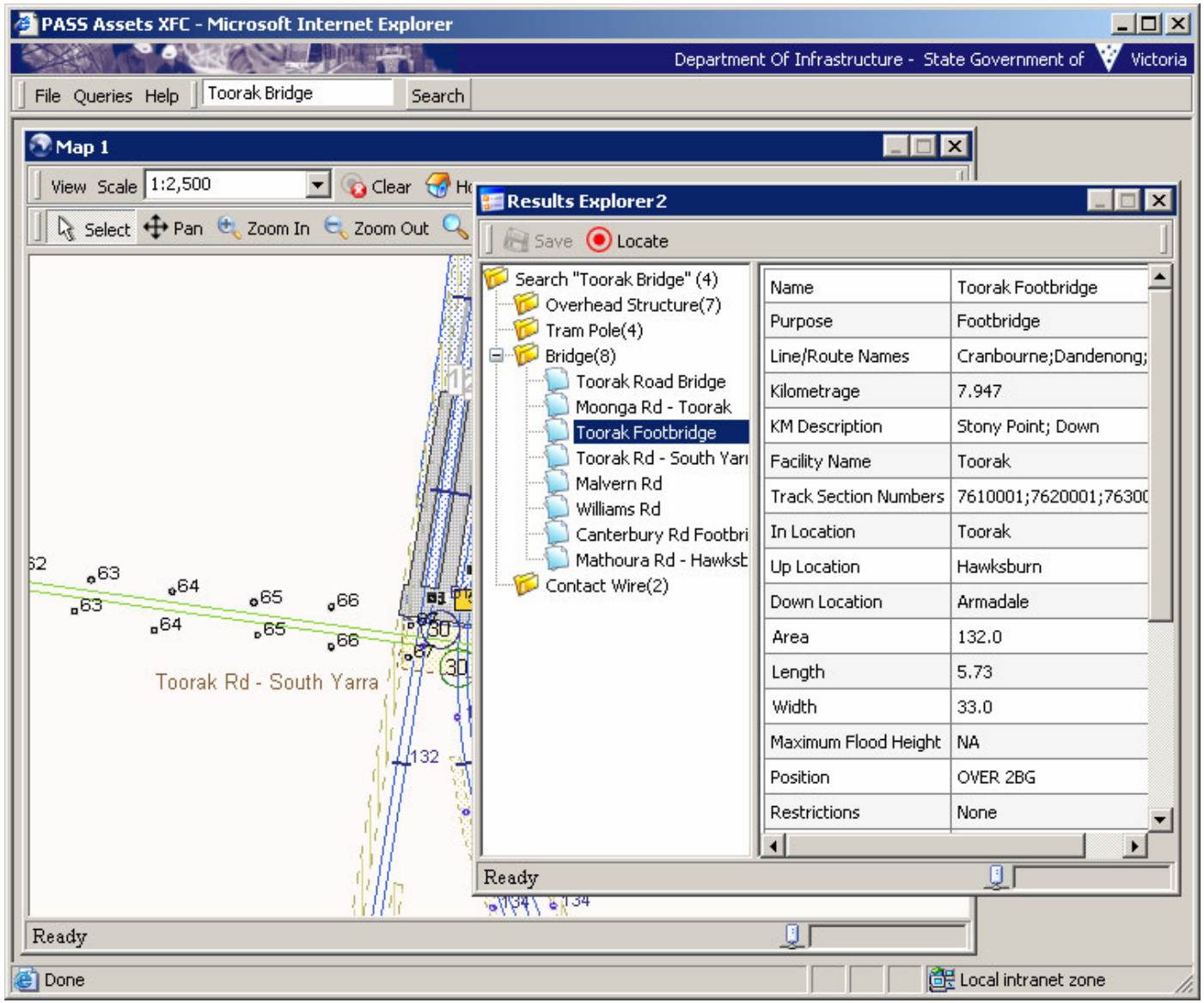
PASS Assets – Web Client



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- Select
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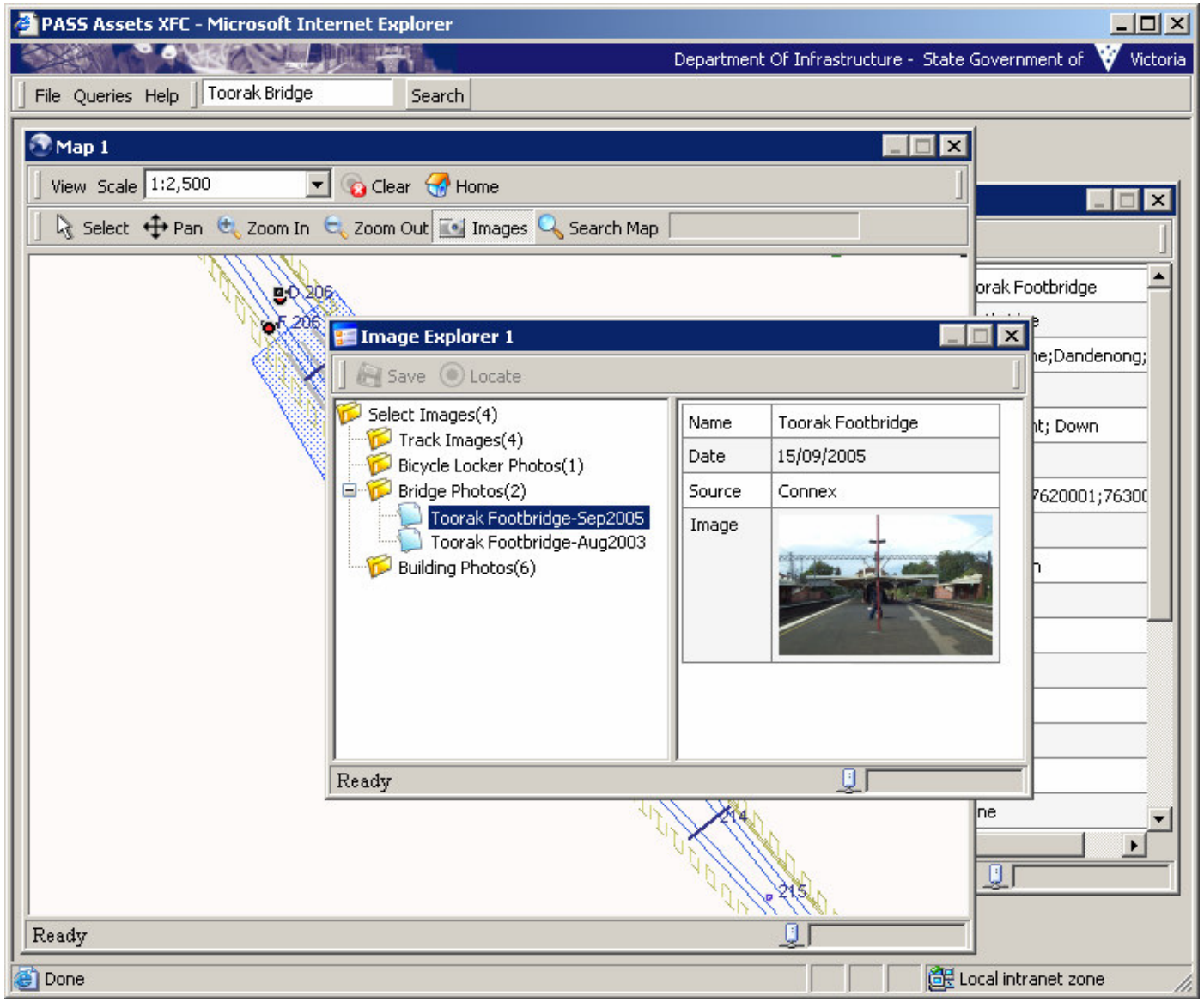

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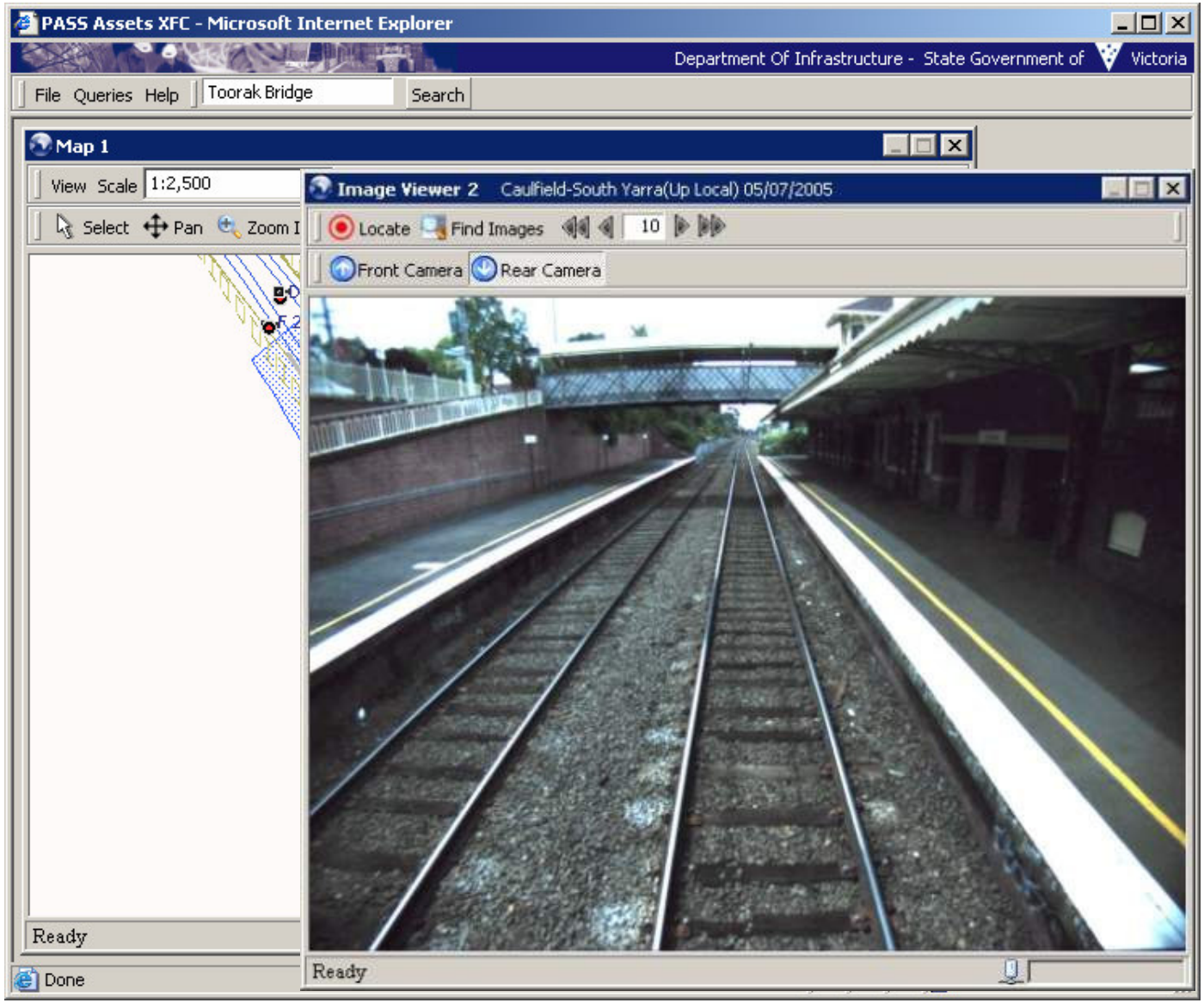

- Web Client
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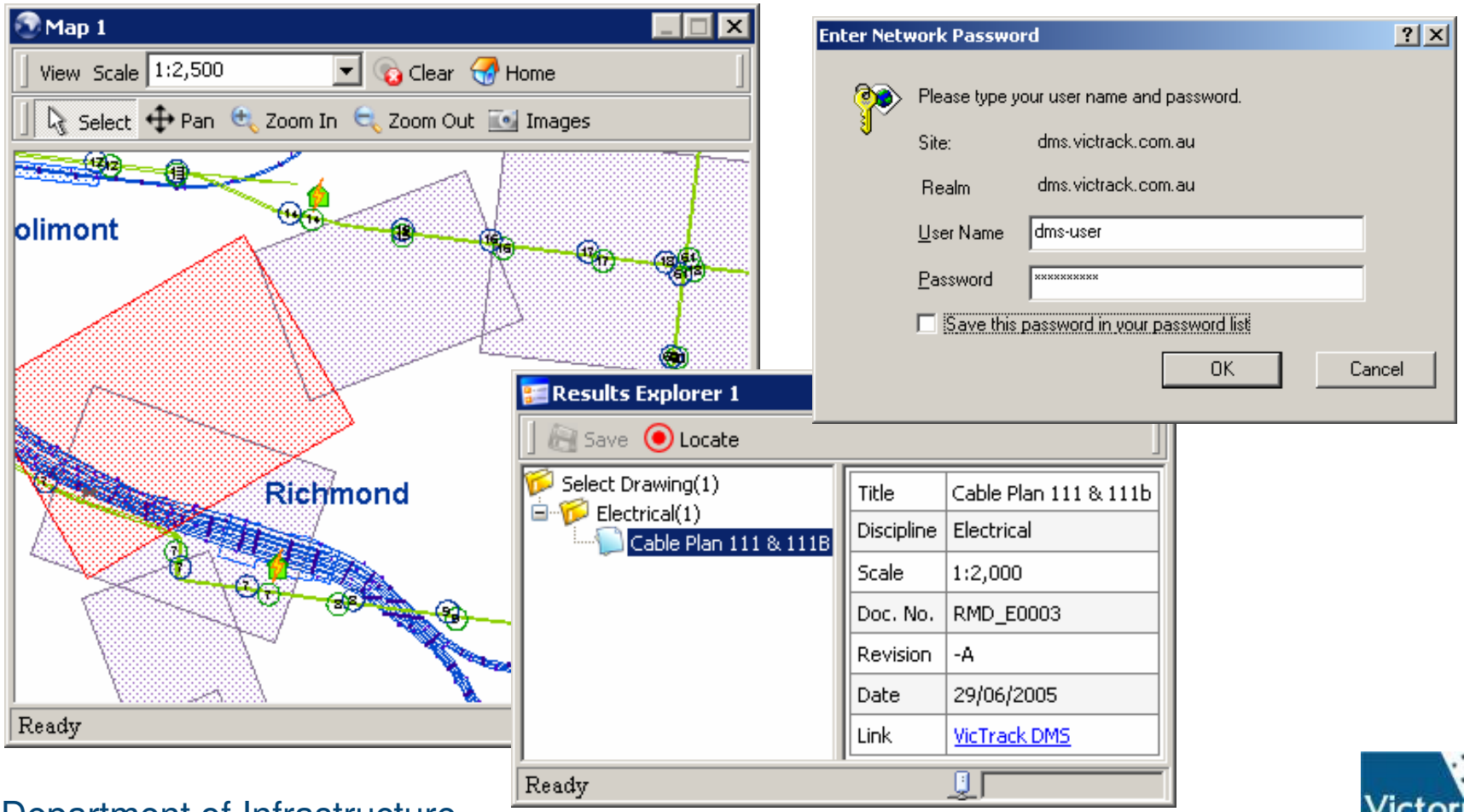
Information Portal

- Integrate with external systems

  e.g. VicTrack's Drawing Management System (DMS)



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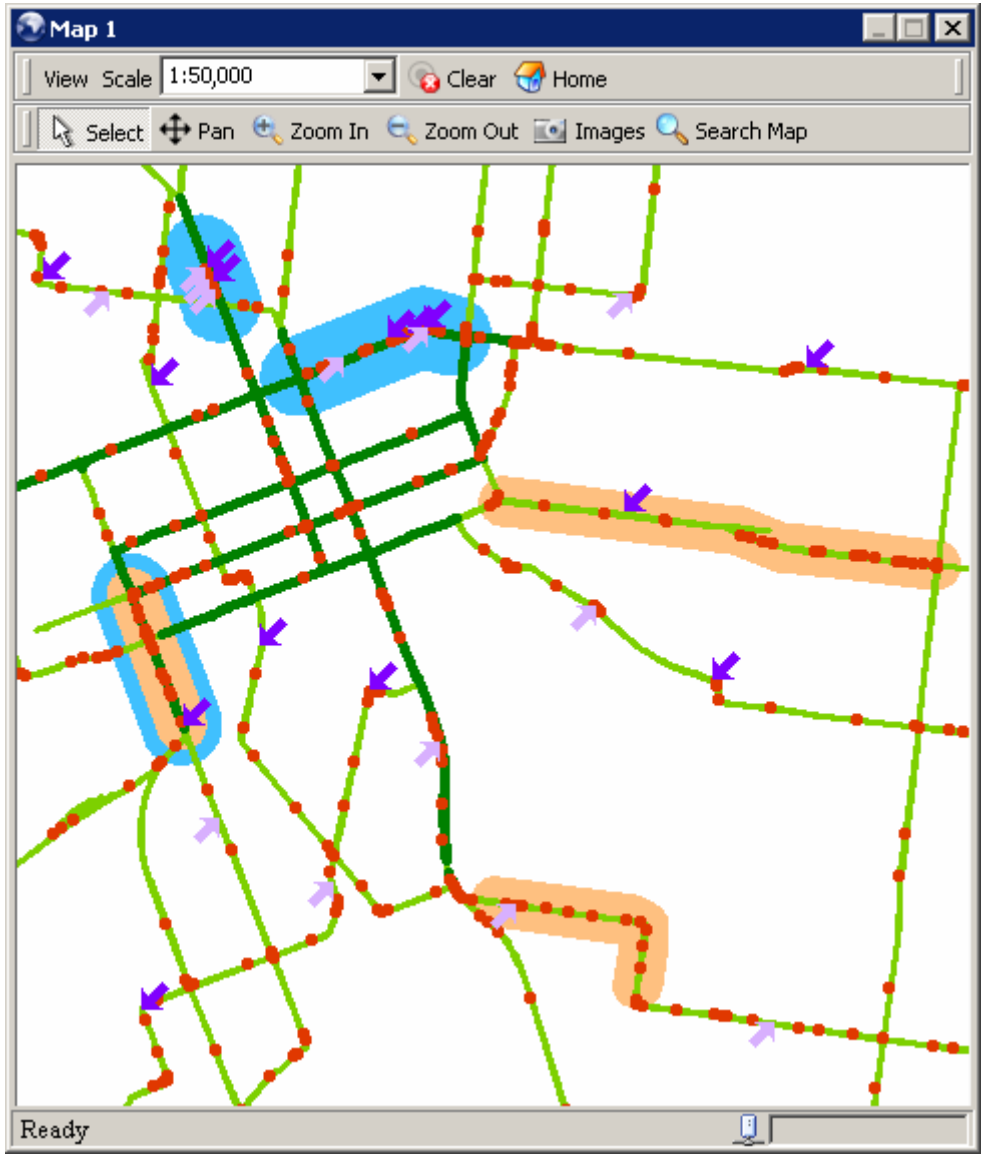
Synergy of multiple datasets

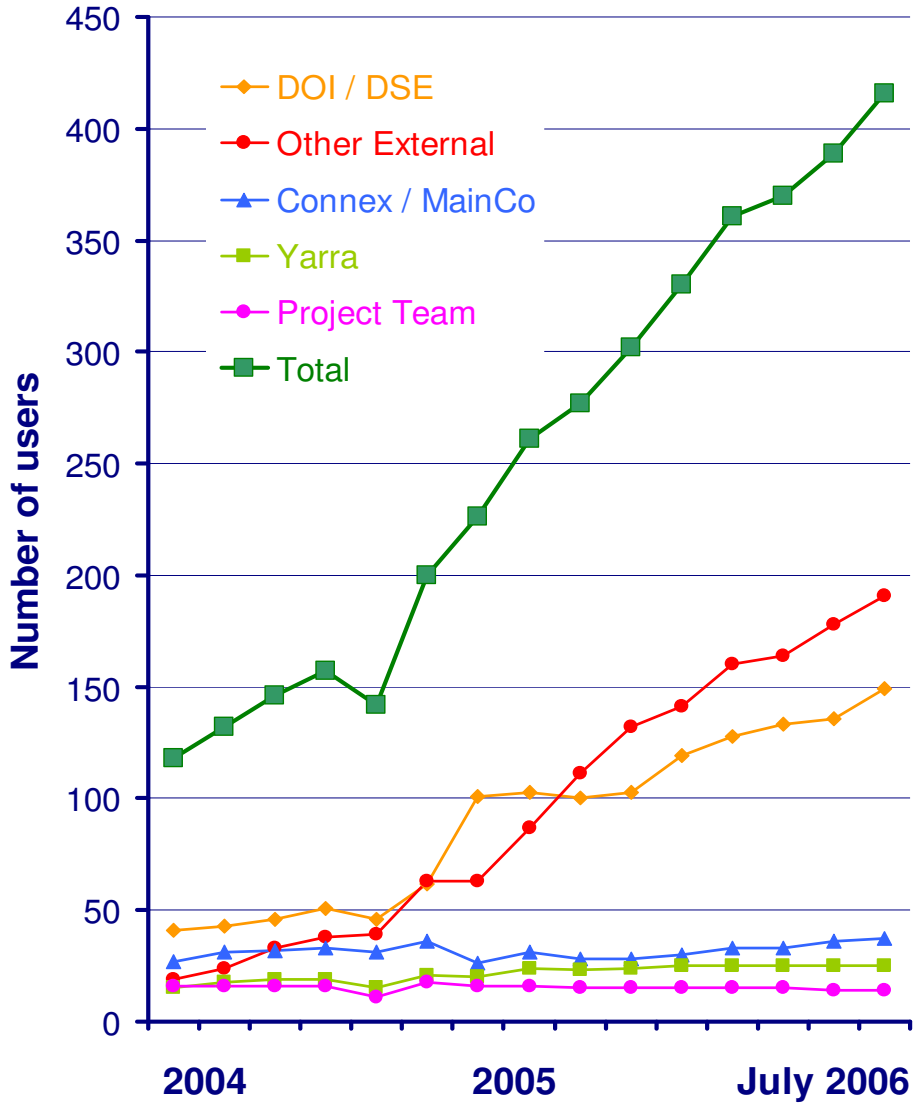


Identify most beneficial areas for Tram Track renewal

- Medium Use Track
- High Use Track
- TRQ Fault
- Maintenance Fix Broken Rail
- Tram Derailment Incident
- DOI Track Replacement
- Franchisee Track Work Plan

User Base

- Originally designed for 5 Users
- DOI and external users
  - Franchisees i.e. Yarra Trams
  - Other Gov. Orgs. i.e. Vic Roads
  - Engineering Companies i.e. SKM
- Now 420+ registered users



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Re-architecture Aims

- Identify and fix performance bottlenecks
  e.g. removing non-spatial functions from the GIS engine
- Construct reusable core services
  e.g. mapping, imagery
- Scale up to many concurrent users
- Reduce vendor lock in
- Provide functionally rich user experience
  e.g. multiple map windows
- Provide open interfaces to external systems

Solution

Original Architecture

- Smallworld HCF (HTML Client Framework)
- J2EE Application Server (Simple XML Transformation)
- Smallworld SIAS

Re-architecture

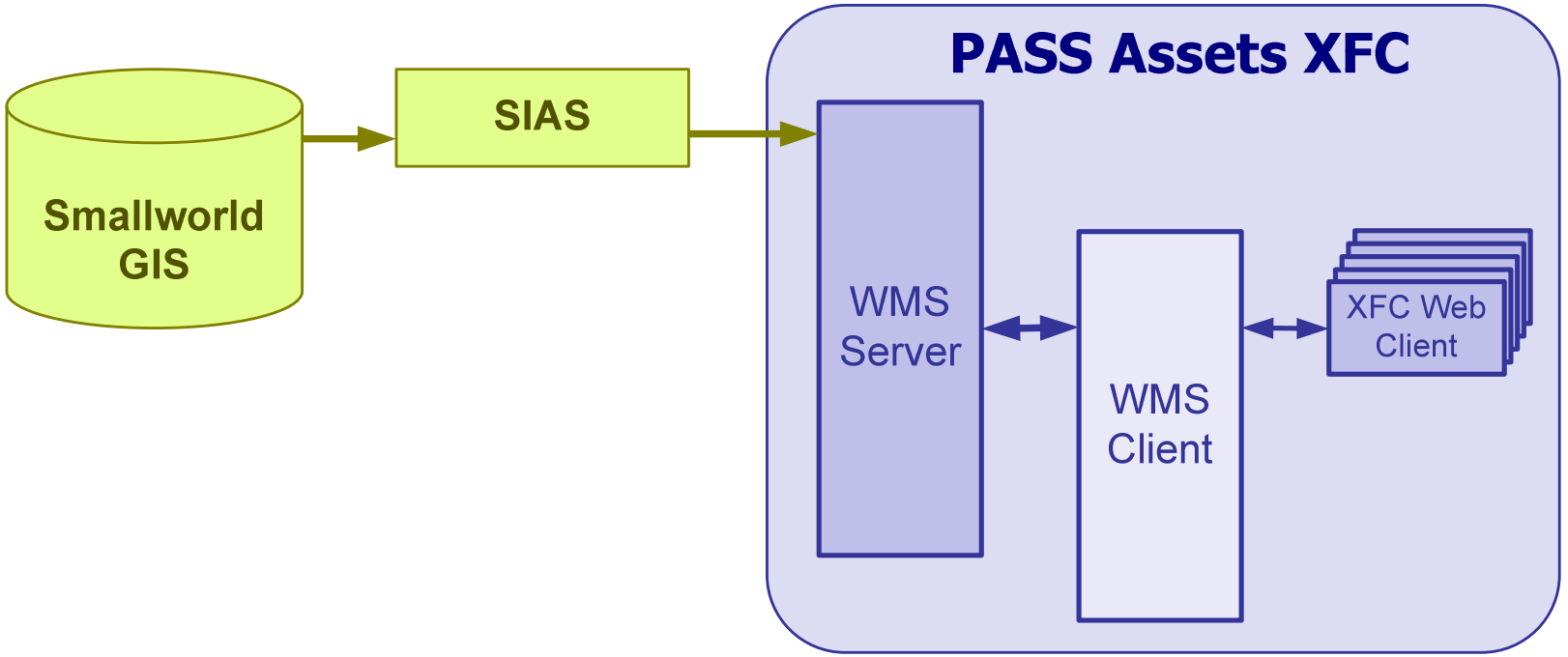
- Ajax/JavaScript Custom Client
- J2EE Application Server (Centralised Business Logic)

- Smallworld SIAS
- Microsoft SQL Server

OR

- Oracle 10g

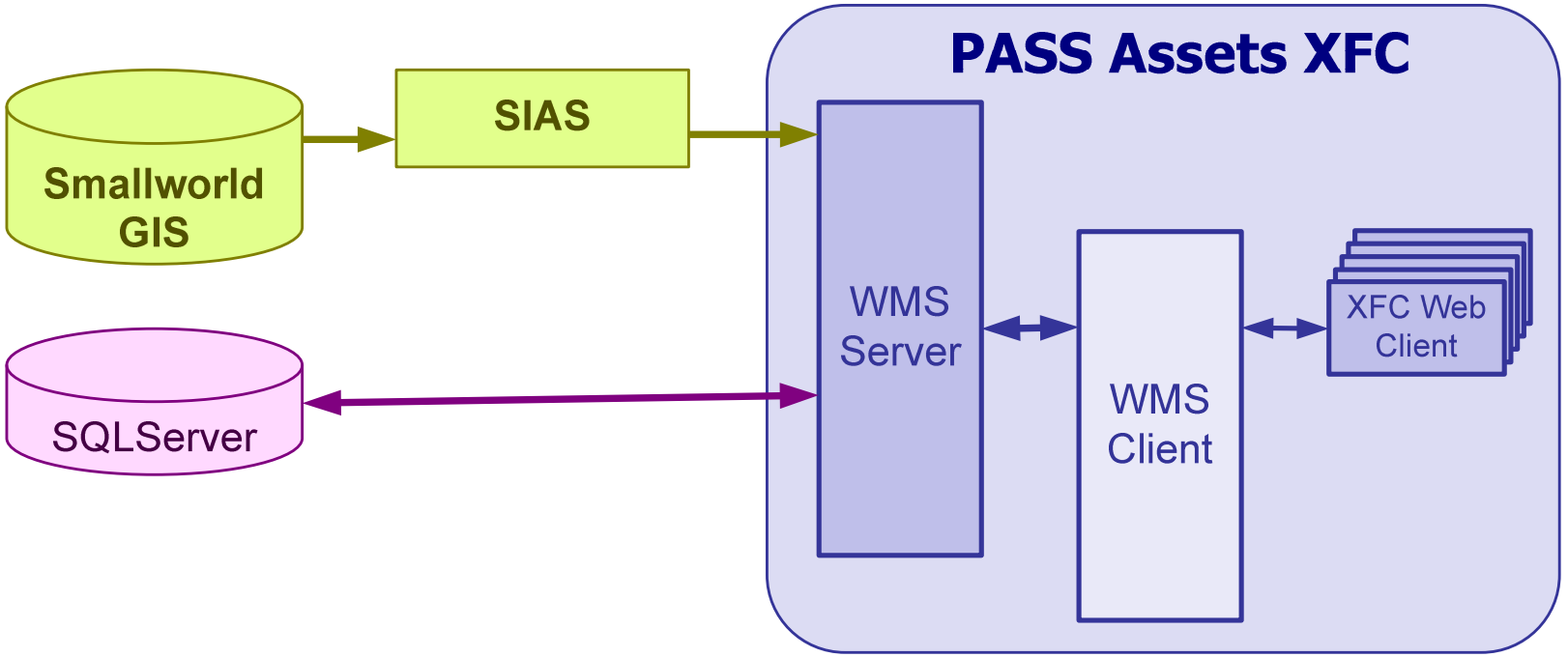
PASS Assets System Architecture



PASS Assets XFC System

- Versatile Design (**WMS** Open Standard)
- eXtremely Fast Client (**XFC**) – AJAX GUI + Advanced Map Caching

PASS Assets System Architecture

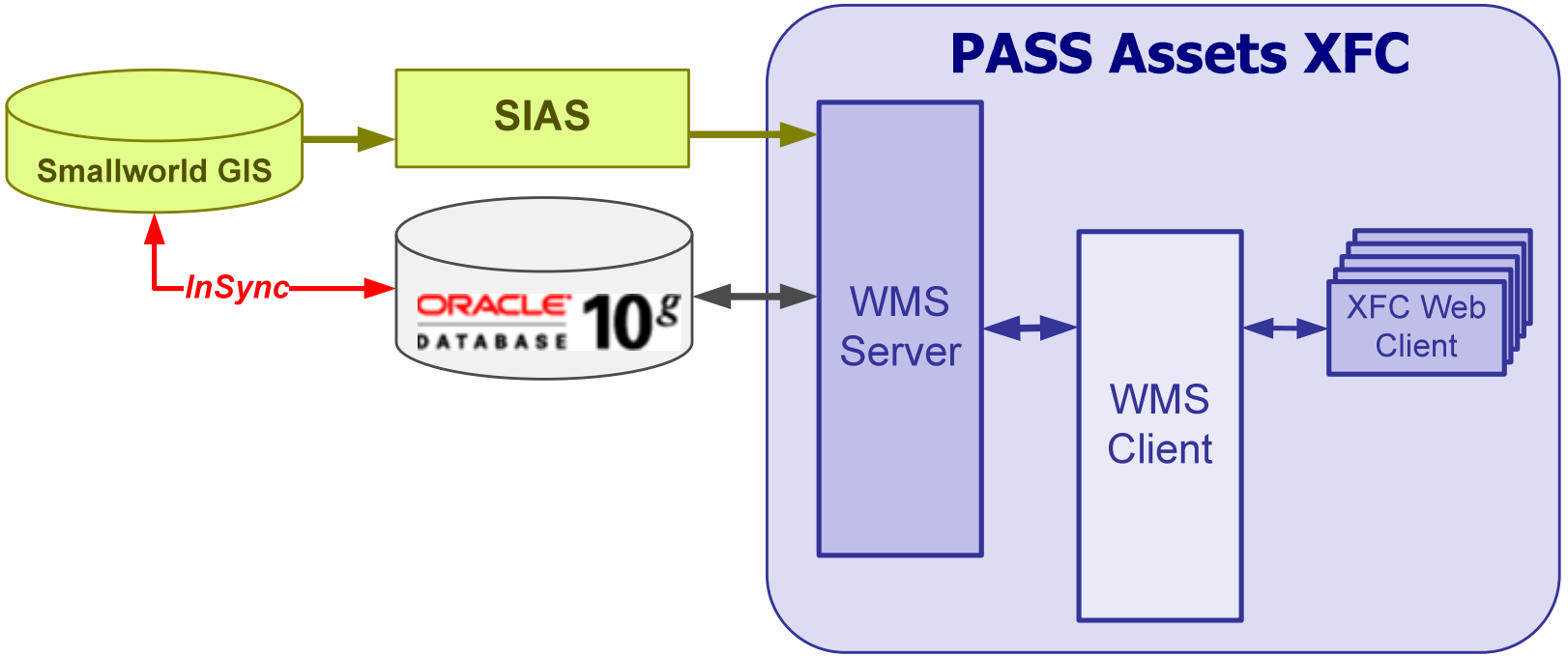


PASS Assets XFC System

- Versatile Design (**WMS** Open Standard)
- eXtremely Fast Client (**XFC**) – AJAX GUI + Advanced Map Caching

- Smallworld Internet Application Server (SIAS) performance & scalability issues
- ***May 2006*** - Attribute retrieval work-around (MS-SQL)

PASS Assets System Architecture

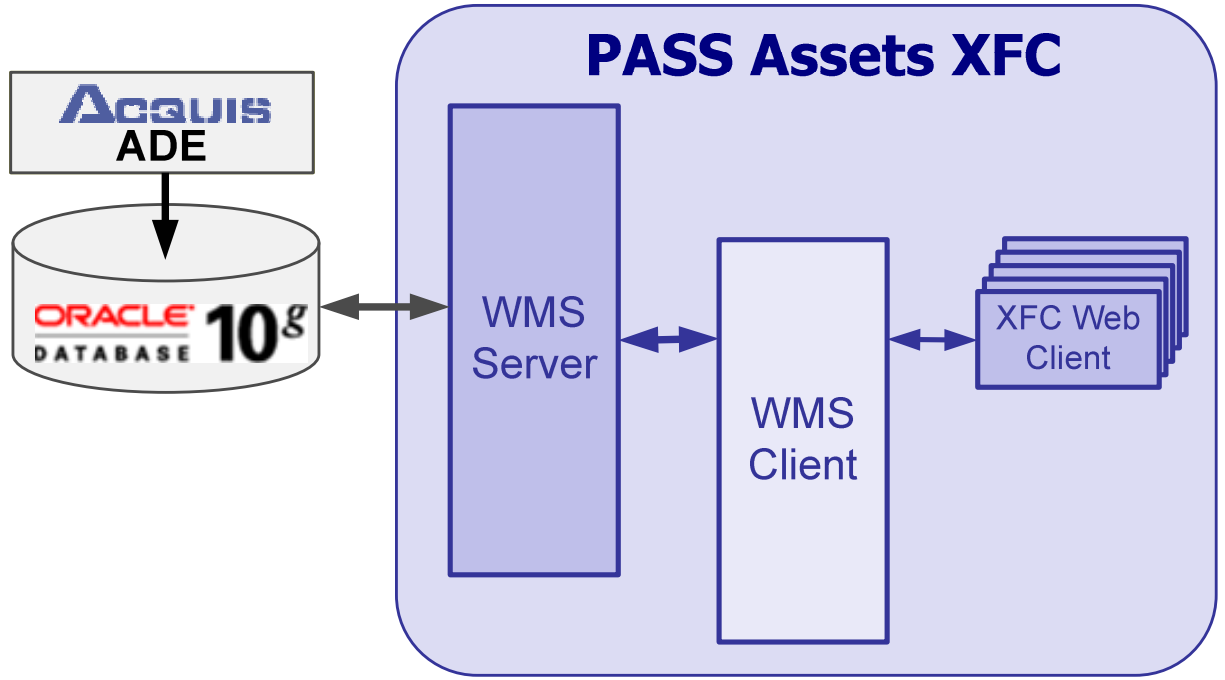


Trial use of Oracle10g *August 2006*

- No Oracle history, no in-house support
- Smallworld and Oracle Spatial support by *we-do-IT.com*
- Proof of concept within days
- Proved PASS Assets capability to serve layers from both SIAS (Raster) and from Oracle10g
- Very encouraging performance increase indicators

PASS Assets System Architecture

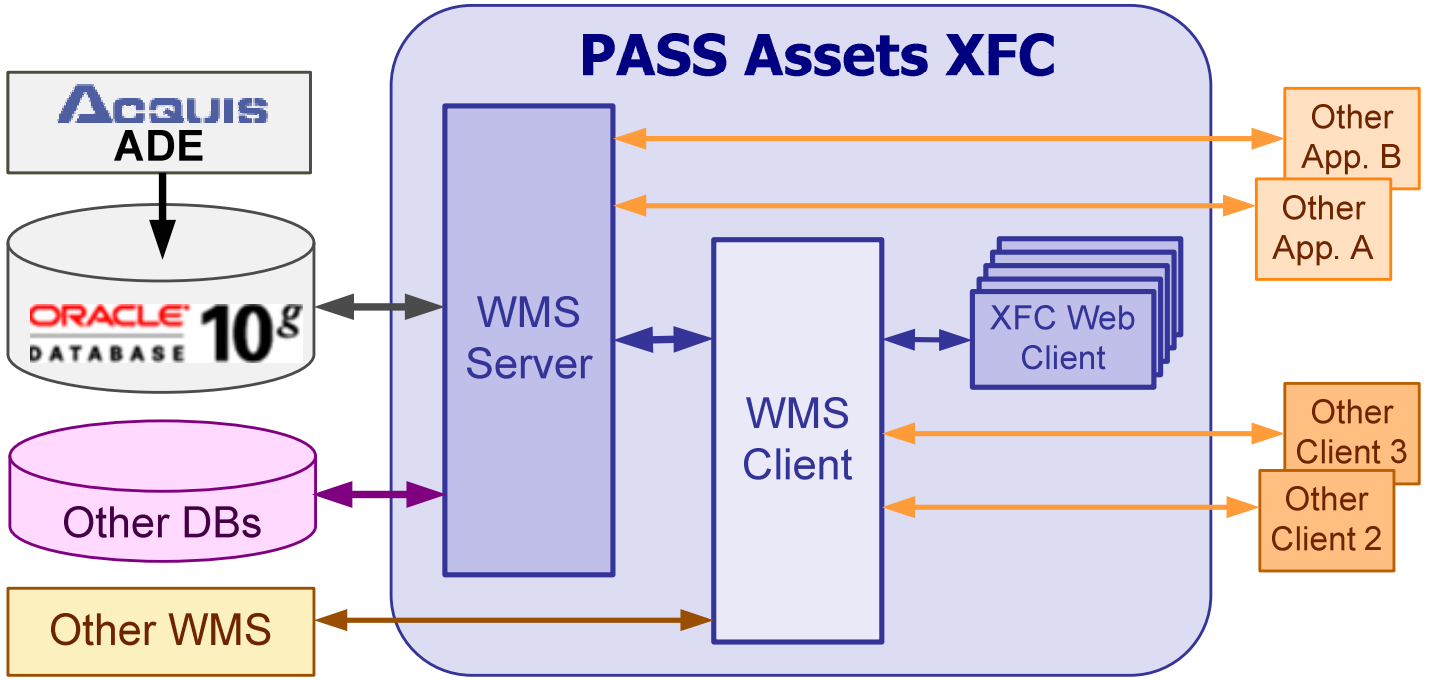
- Topology Editing
- Version Management
- Connected / Disconnected Editing



Next Step *September 2006*

- Quantify encouraging performance indicators from trial
- Evaluate alternative "back-office GIS" function, i.e. full topology/version management environment ACQUIS/ADE
- Explore Legacy system redundancies
- Explore wider business integration potential e.g. mobile asset inspections and remote/detatched editing

PASS Assets System Architecture



PASS Assets flexibility for the future

- Link to other databases, such as Safety Incident system
- Utilise existing Web Mapping Servers for non-core data
- Investigate different client types, i.e. PDA
- Provide WMS services to other application, e.g. the Metropolitan Train Control Centre