



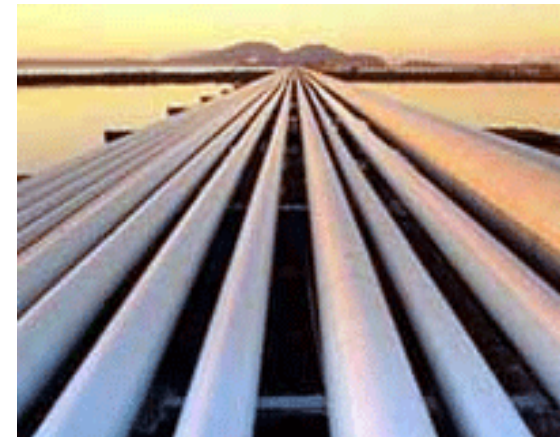
# Integrated SCADA management

## *a business perspective*

**Paul van Driest**  
Product director  
driestp@qpit.nl

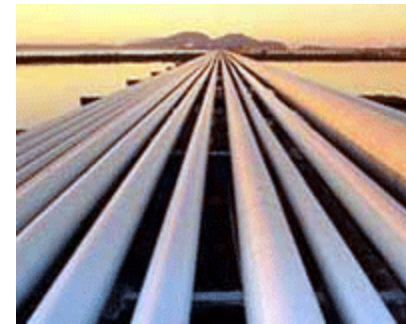
**QPIT BV**  
Schiekade 830  
3032 AL Rotterdam  
The Netherlands  
+31 (0)10 24 39 373

**Websites:**  
[www.qpit.nl](http://www.qpit.nl)  
[www.quism.nl](http://www.quism.nl)  
[www.quism.eu](http://www.quism.eu)  
[www.quism.com](http://www.quism.com)



## 1.1 Introduction

- Integrated SCADA management:
  - Demonstrate the **integration** of SCADA :
    - With **applications** and users;
    - In a **secure** and high **availability** architecture;
    - Into the ISO 20000 service management **framework**.
  - Based on QPIT **business case** for international pipeline application...



## 1.2 Company profile

- System integrator from Holland;
- Specialized in:
  - Bespoke software solutions and system integration;
  - Service management: Quism product;
  - Pipeline SCADA;
  - Environmental SCADA;
  - Harbor measurement networks;
  - Traffic monitoring networks;
- Delivering ICT solutions to more than 100 customers in Europe...



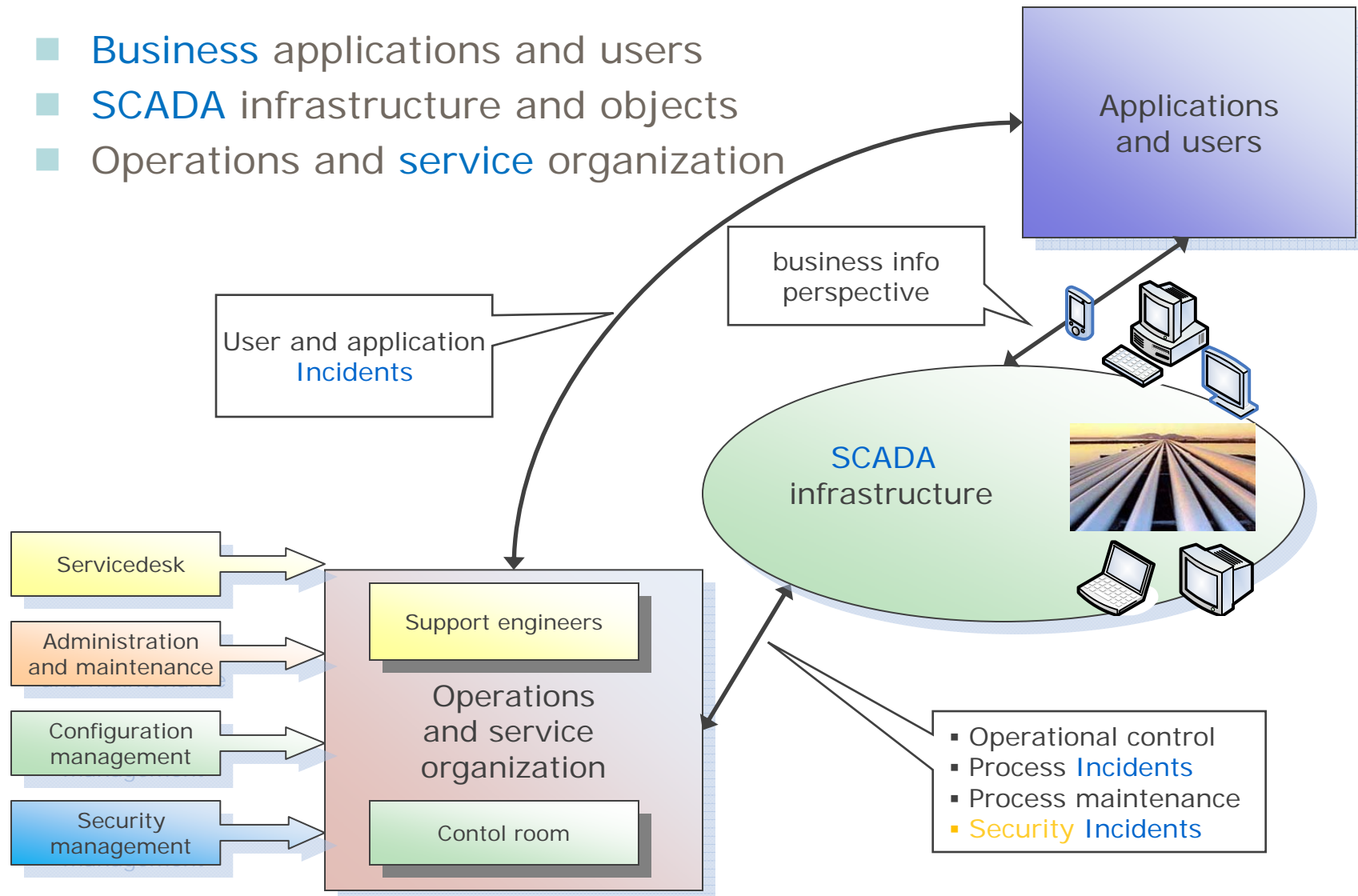
## 1.3 References

- Oil, [SABIC](#), [TOTAL](#), [BP](#), multinational petrochemicals and oil distribution;
- Logistics, [Fujifilm](#) european distribution center;
- Manufacturing, [IHC Merwede](#) multinational shipyard;
- Local government, [Amsterdam](#) city counsel, Rotterdam [Harbor](#) authority;
- Central government, [Ministry](#) of transport and public works;
- Education, [University](#) of Leiden;
- Healthcare, [Trimbos](#) mental health, addiction;
- Retail, [Okaidi](#) multinational distributor clothing;
- Consultancy, [Berenschot](#) management consultancy;
- Telecom, [Tele2](#) telecom provider.



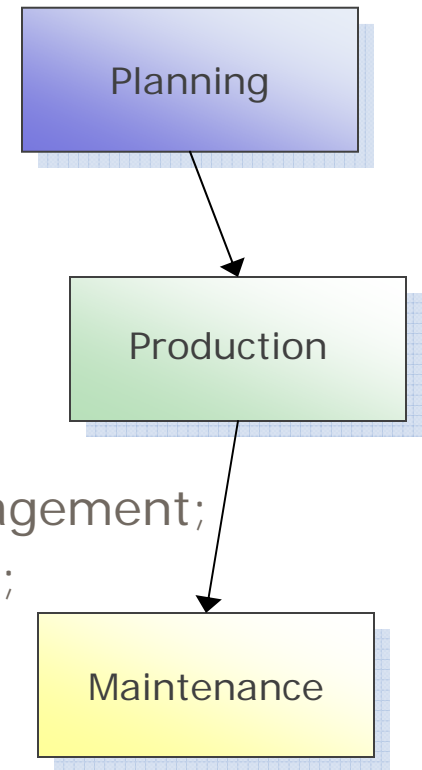
# 1.4 Integrated SCADA management

- Business applications and users
- SCADA infrastructure and objects
- Operations and service organization



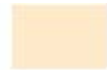
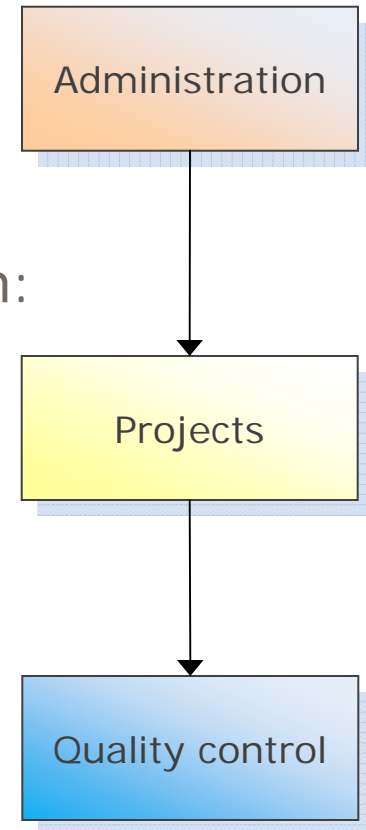
## 1.5. SCADA business process perspective

- Production planning and administration;
  - User and application **incidents**;
- Production operation;
  - Standard operating procedures (SOP);
  - (batch) plan and report;
- Operational control;
  - Operational alert and **incident, problem** management;
  - (emergency) **change** management and SOP's;
  - Security **incidents**.



## 1.6. SCADA business process perspective

- System and infrastructure administration:
  - Update and (recurring) maintenance tasks;
  - **Configuration** management.
- Production and infrastructure optimization:
  - Improvement, quality and efficiency;
  - Projects and **Changes**;
  - Planning and progress;
  - Testing;
- **Quality** control and assurance:
  - Reporting and log monitoring;
  - Quality control records;
  - Compliancy, exceptions and trends.
  - SOP compliancy.



## 2.1. Customer case

- **Process** characteristics:
  - 24/7 mission critical oil product pipelines;
    - Ethylene (gas);
    - Liquid (condensed) oil products;
  - Input to large production plants;
- **Specific** requirements:
  - High availability;
  - Secure and safe environment.

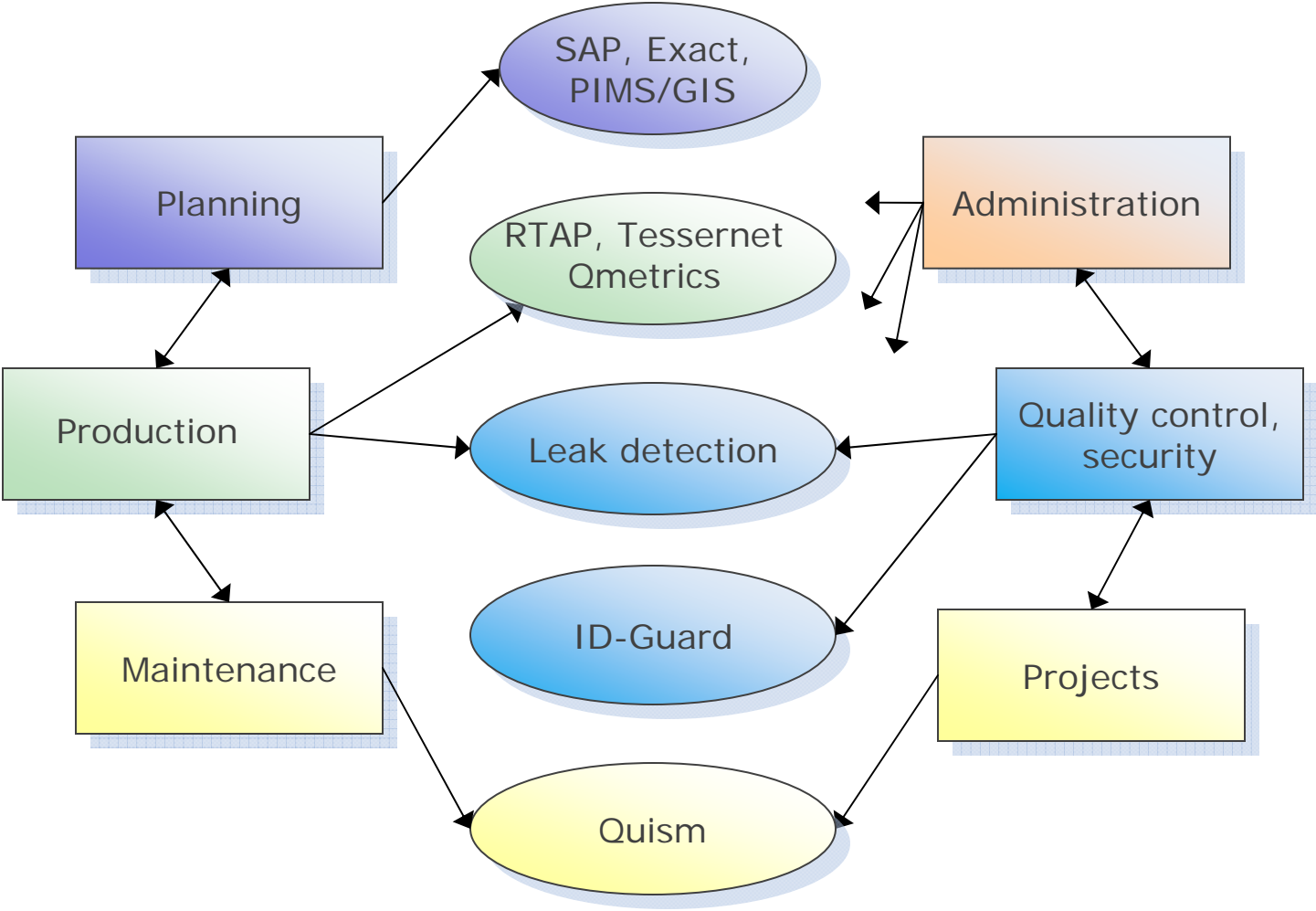


## 2.2. Customer architecture

- Components:
  - Fully redundant **hot** standby SCADA configuration;
  - **Secured** TCP/IP network infrastructure and telemetry;
  - ITIL(ISO 20000) best practice **service** management;
  - Production planning and administration tools;
- Architecture overview:
  - **RTAP** SCADA UNIX configuration;
  - Industrial Defender **GUARD**;
  - Proprietary and redundant **telemetry** network;
  - **Quism** web based service management;
  - **SAP**, Exact, PIMS/GIS production planning and administration.

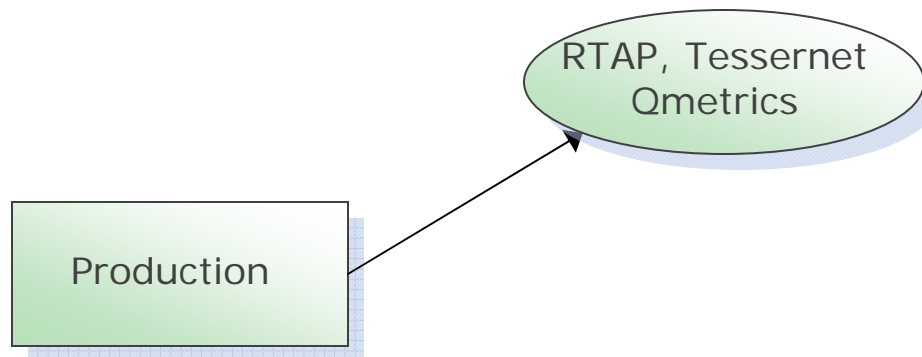


# 2.2.1 Process and sw product diagram



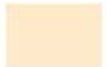
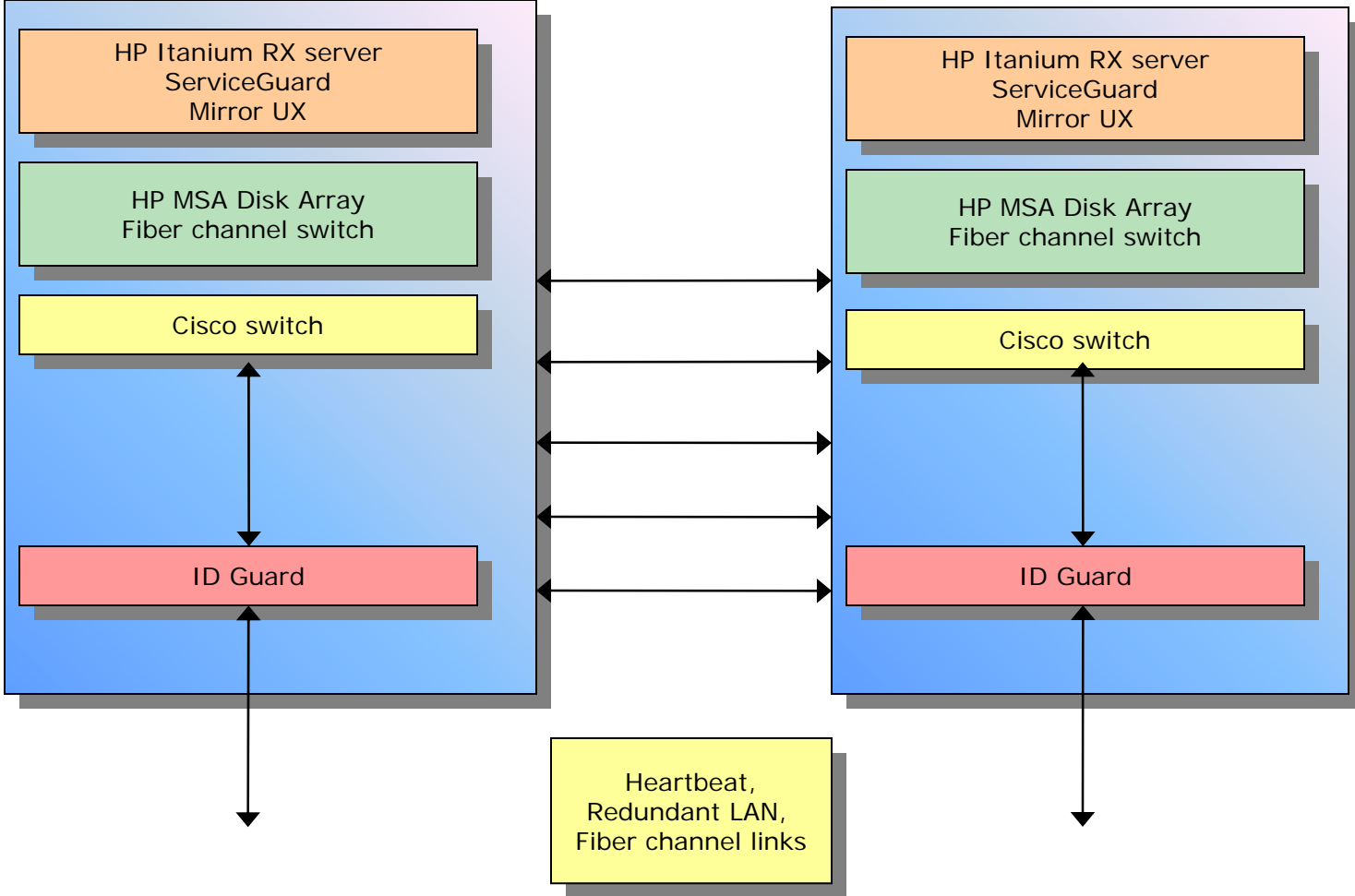
## 2.2.2 SCADA details

- Architecture details:
  - RTAP SCADA UNIX configuration;
    - Dual HP **Itanium** server in separate location;
    - **Redundant** fiber channel disk array;
    - **Serviceguard** high availability software;
    - **Leak** detection applications;
    - Tessernet **SCADA** components;
    - QPIT **Qmetrics** bespoke components.



# 2.2.3 SCADA details

- Operator
- SCADA Server
- Local Mirror System Disk
- Cisco Switch
- Security Device
- Telemetry FEP



## 2.2.4 Architecture details

- Ethernet based telemetry:
  - IEC 870 telemetry protocol, migrated from MODBUS;
  - Redundant Cisco network components;
  - Proprietary and redundant telemetry network;
  - 80 IDS telemetry stations, each 16 digital 8 analog I/O;
  - Leak detection:
    - Pressure wave
    - Model based, Aspentech Custom Modeller;
- Industrial defender Guard and Console.
- Quism web based service management;
  - Incident, Change, Configuration management;



## 3.1 ISO 20000 service management framework



- ISO 20000 standard, based on ITIL and BS15000;
- **Universal** standard for service and maintenance;
- Standard has IT focus, in practice, broader acceptance of framework:
  - Maintenance management;
  - Facility management;
  - Finance and HRM;
  - LIMS environment.
- Primary service processes:
  - Incident;
  - Problem;
  - Change;
  - Configuration;
  - Service level.



## 3.2 ISO 20000 service management framework



- Practical use:
  - SCADA objects (systems, pumps, valves) in Configuration database: **service history**;
  - SCADA alert escalation => Incidents=>Problems=>Changes: **SOP compliance**;
  - Proactive maintenance: **availability**;
  - Service contracts (suppliers);
  - Standard operating procedures:
    - Maintenance;
    - Security and emergency;
    - Operation and production;
  - => **Improve**: availability, quality, reduce risks.



# 4 Discussion

