Bulk Terminal Operating Systems

Enterprise V Single Instance for Multi Site Operators

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✓ | About TBA

✓ | Bulk Terminal Operating Systems in a nutshell

✓ | Single Instance V Enterprise – What are the differences

✓ | Delivery Options

✓ | Data integrity and security

✓ | Benefits of Enterprise Systems

About TBA Group

Our view of the world and what we aim for

TBA — Simplifying your operation

Vision: what we see

2025
9.000.000.000
world population growth

continued growth
in trade and transport

growing environmental and
social responsibility

digitalization and technology
offers unlimited opportunities

Our Mission:
Simplify terminal operations, we enable our clients to perform at their best in terms of safety, cost-efficiency and productivity

Our philosophy: every activity in terminal operations impacts the outcome.
By simplifying every process in terminal operations, we contribute to a better result for the terminal as a whole.
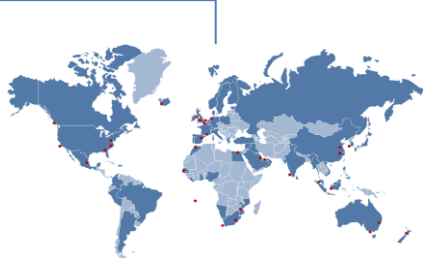
Company profile

1000+ projects
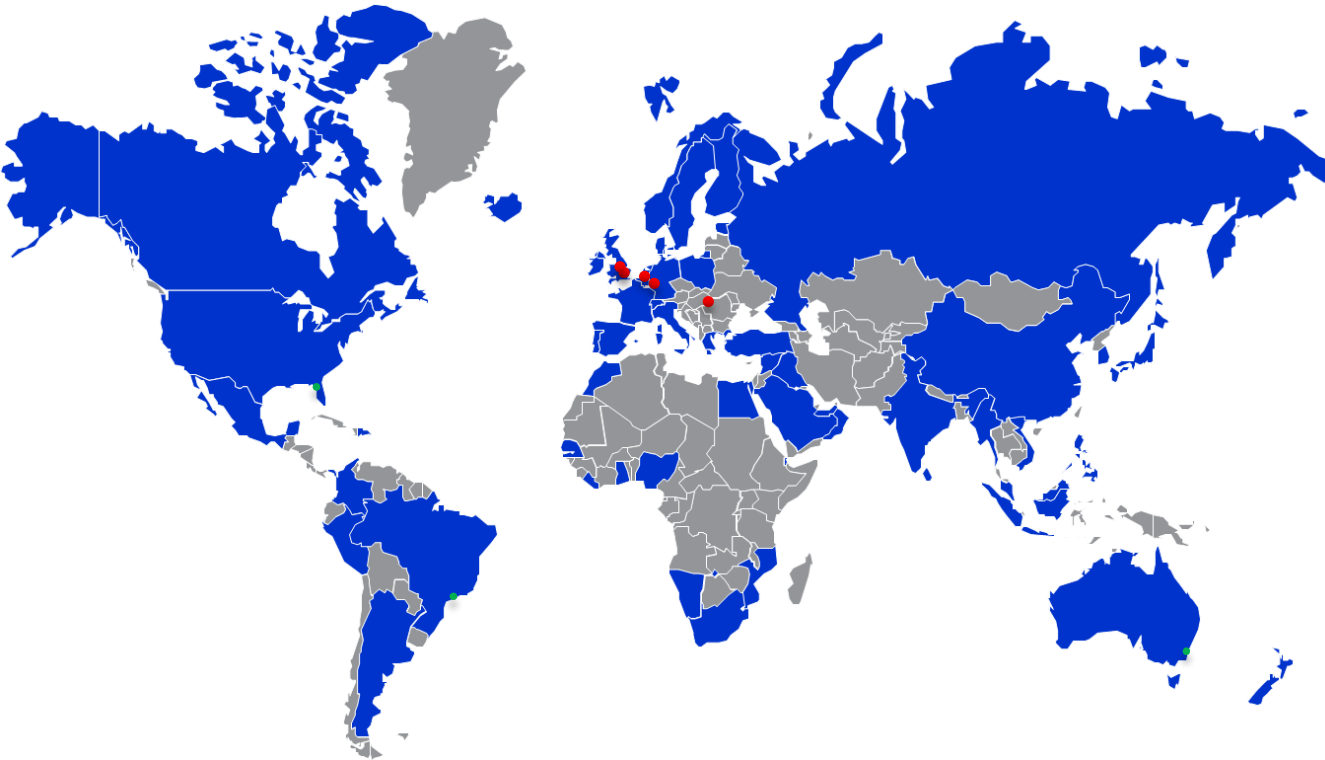50+ design of automated terminals
50+ improvement projects

250+ employees
85+ countries
5 offices

150+ live installations @ 24/7 support
5 fully automated terminals
10 fully automated warehouses

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Customers in the Port sector

✔ | 1000+ projects, 150+ installations

Lifecycle approach

We deliver services and solutions contributing to the performance of terminals and warehouses

- ✓ Our lifecycle approach is unique: we offer an integral and complete set of services to the world of terminal operations.

- ✓ We see Simplifying Terminal Operations as a continuous and iterative process: solutions in the different terminal stages improve the overall result.

- ✓ By applying a holistic view, we see the impact on the total process and the improvements in every stage of the lifecycle.

- ✓ Sophisticated software solutions are the outcome from our lifecycle philosophy.

DESIGN · IMPLEMENT · OPTIMISE — SOFTWARE
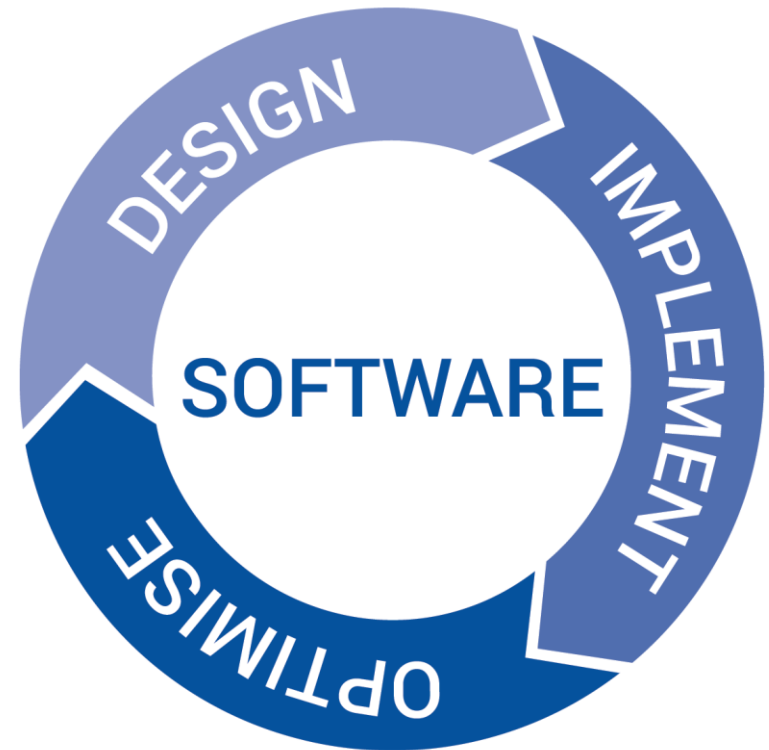
Bulk Terminal Operating Systems

In a nutshell

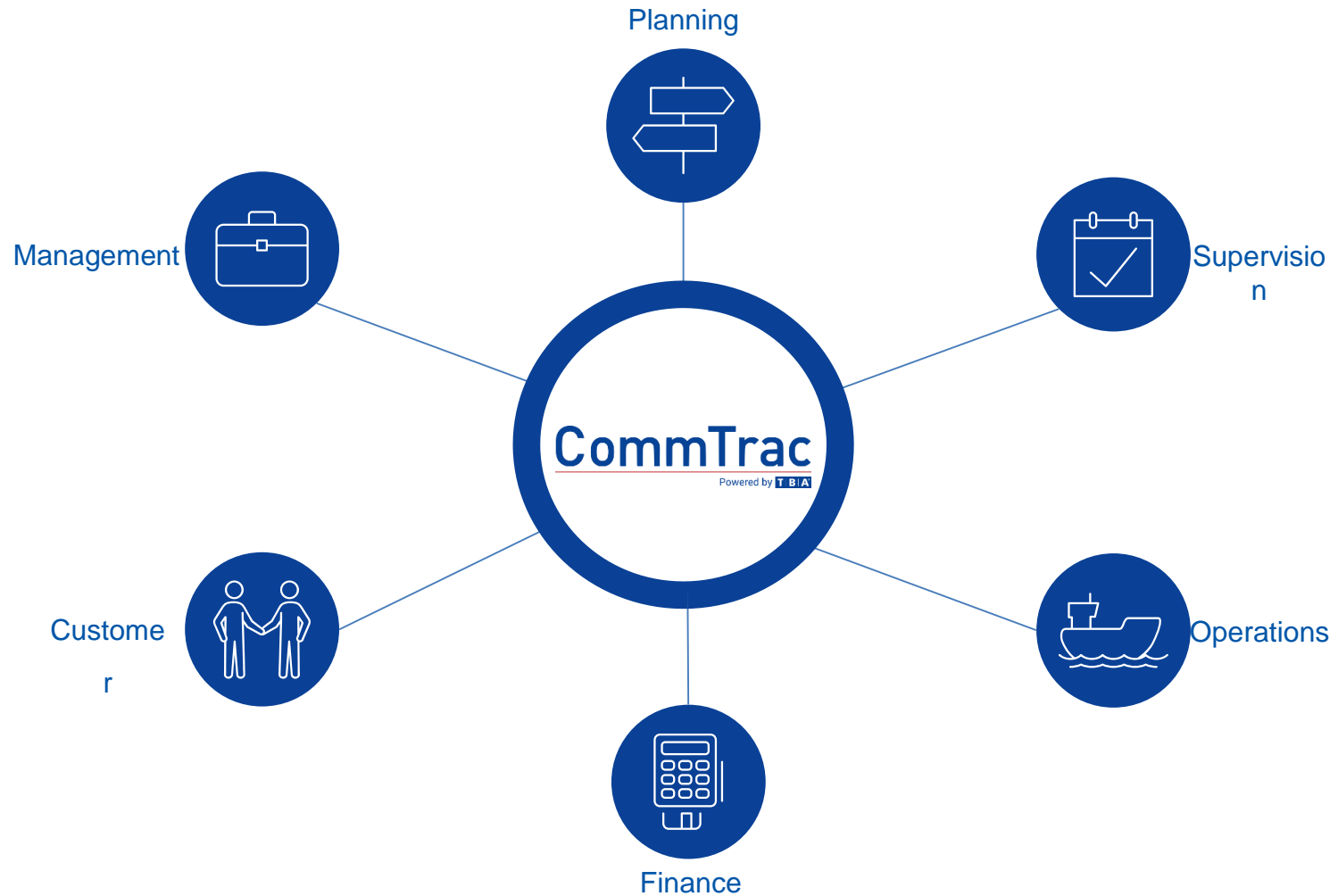# Many terminals still operate without a TOS (TMS)

✔ | A typical terminal environment contains **several** key stakeholders with multiple points of data collection which inevitably result in:

- 50+ different spreadsheets, mostly maintained by hand

- Manual data entry across different IT systems and documents

- No central hub of information

- Difficulty in obtaining real-time operational information

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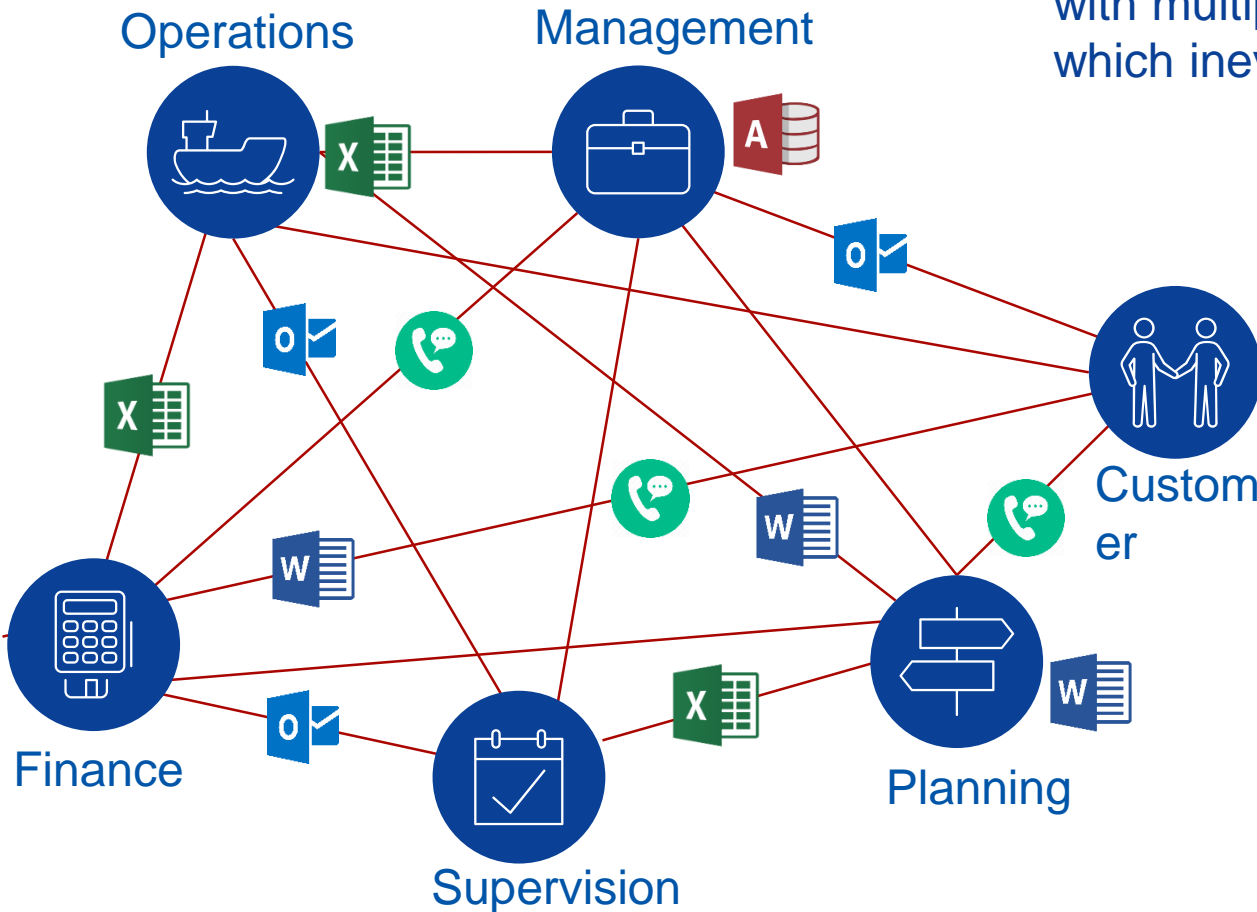
A TOS connects all internal (and external) stakeholders

✔ ı Using **one system** to collect and process all information

Integration is key

✔ | Real time, time stamped data

Equipment Control (SCADA)

ERP
Financials, Costs, CRM, Taxes

CommTrac
Powered by TBA

Measuring Devices
Weighing System, Barcode and RFID readers

Customer Portal
Progress reports, Order booking, Stock levels

Maintenance Systems
Permits, Work instructions
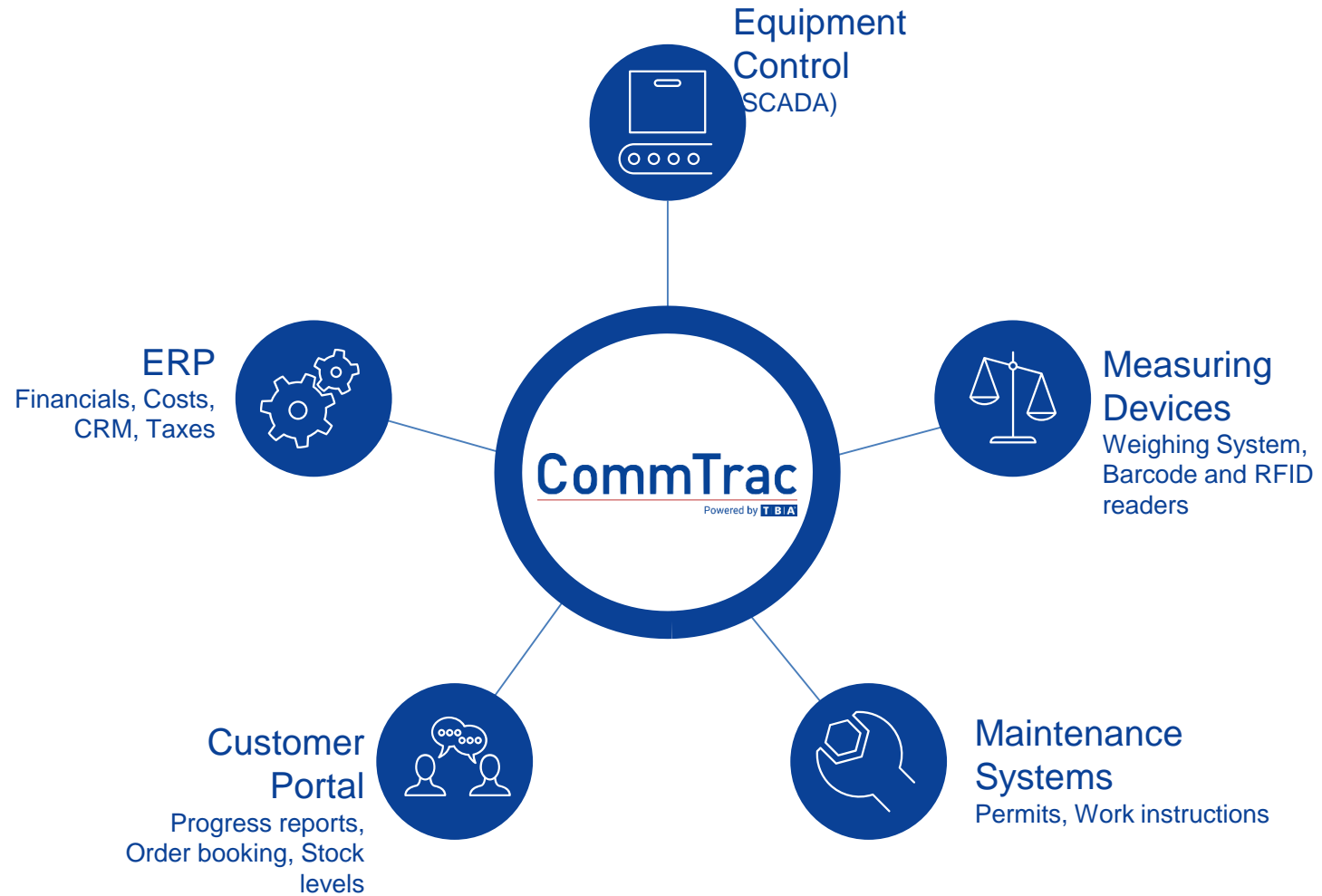
Functionality across the business

Vessel	Stock Management	Delivery (Rail/Truck)	Invoicing	Reporting
Create manifest	Create Storage Area	Create Truck/Trains visits	Create Customer Contracts	Generate fixed reports
Assign Berth	Allocate Commodity	Weighing integration	Automatically Accrue rentals	Automatically send via email
Create Delivery orders	Create Storage Rules	Visibility of trucks on site	Generate Vessel Invoices	Receive alarms and notifications
Discharge/Load Vessel	Manage Customs Clearance	Create Sampling Specifications	Work orders to capture billing	Create your own Ad-hoc reports
Realtime Progress	Realtime Inventory	Realtime Inventory	Complex billing supported	Create your own dashboards
Calculate Demurrage	Handle Working Loss	Generate/Print gate receipts	Interface with Finance/ERP	Report at terminal and company level

Single Instance V Enterprise

What are the differences

Single Instance TOS

Why?

✔ | Localised systems have been implemented because

- – Regional suppliers in geographical areas
- – Acquisition of businesses with existing systems
- – Systems not part of strategic roadmap
- – Perception that one size doesn't fit all and nothing is standard in terminal operations
- – Up until recently systems for enterprise management were hugely expensive (ERP such as SAP or Oracle)

Limitations and Frustrations

- ✔ | At the operational level localised systems tend to meet the business requirements
- ✔ | However independent systems have significant limitations
  - Localised reporting
  - KPIs based on different metrics
  - More difficult to drive corporate continuous improvement strategies
  - Standard Operating Procedures vary from terminal to terminal
  - Localised master data and tariffs
  - Higher administrative load to collate data
  - Large IT overhead
  - Potential for key-man dependency at a terminal level
- ✔ | For Customers the situation is also frustrating
  - Same type cargo in multiple locations and no central overview
  - Separate communication with each terminal

Enterprise Solutions

How?

✔ | How is this now possible?

✔ | Advances in connectivity, both from a network and equipment perspective

✔ | Cloud services become available and affordable to all

✔ | A demand for data led by metrics based decision making

Enterprise infrastructure requirements

- ✔ One centralised server architecture

- ✔ Allows for easy scale up and out on demand

- ✔ Network and device setup at local level only

Enterprise

Server Architecture

Presentation Tier

Application Tier

Data Tier

Head Office / Cloud

Internet Gateway

Site 1

Site 2

Site 3

Realtime Communication Server

Mobile Client
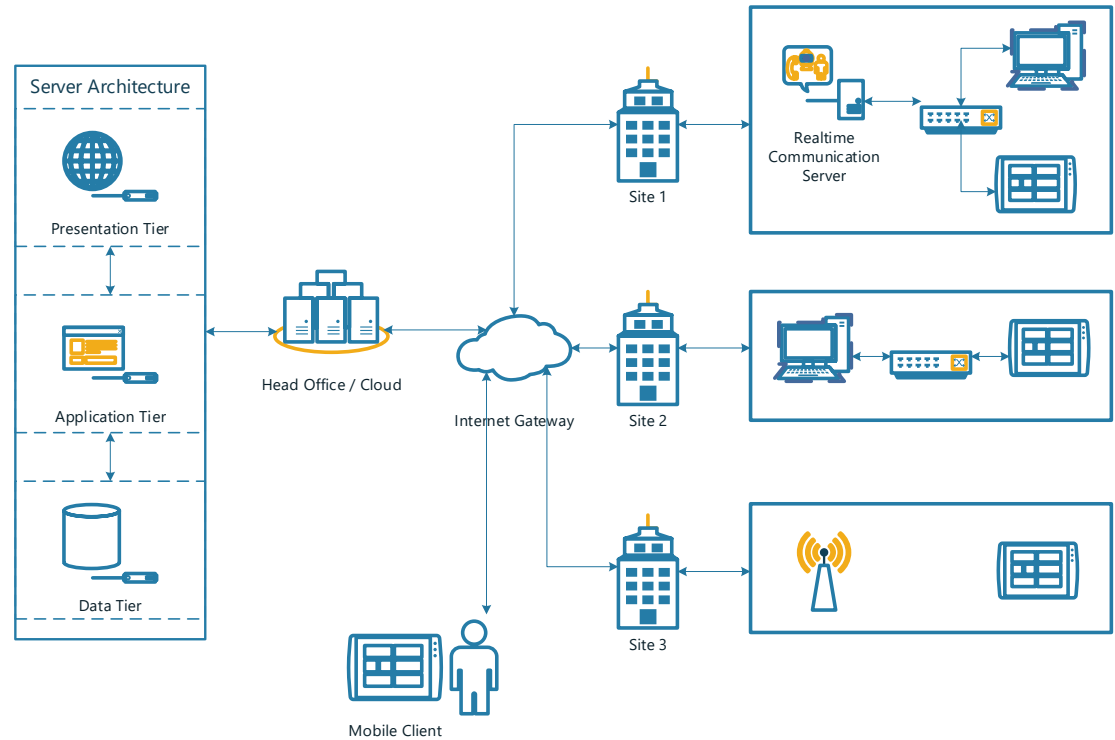
✔ | **Micro Services can be used on local devices to collate real time information**

– Collation of real-time transactions locally means no data loss in the event of a network failure

✔ | **Off-line applications**

– Hand held devices are typically designed to work off-line and will synchronise to the central servers when a connection becomes available

✔ | **Internet of Things Devices**

– Local Storage to collate on site information

– Data pushed to the central servers when online

- ✔ | Options for infrastructure and outsourced managed services
  - – Organisations make a decision of how much of the hardware and infrastructure they want to maintain in-house
  - – Managed services are available where some or all of this can be administered by a separate provider
- ✔ | SaaS - cost per month basis and includes licensing, support and infrastructure
  - – OPEX expenditure rather CAPEX
  - – Easier to maintain and upgrade

Options for outsourcing

On Premise	Infrastructure as a Service (IaaS)	Platform as a Service (PaaS)	Software as a Service (SaaS)
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
O/S	O/S	O/S	O/S
Virtualisation	Virtualisation	Virtualisation	Virtualisation
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking

Managed by Customer

Managed by Supplier

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When is enterprise not the right option?

- ✓ | **Centralised Enterprise applications are highly dependent upon Network Connectivity**

  - – Remote locations with poor network infrastructures make this type of solution more challenging
  - – New technologies and development strategies are making this less of a problem

- ✓ | **Lower levels of location-based adaptability**

  - – If operations are more diverse and there is no way to have standard work flows and operating procedures
  - – The latest systems do allow for localised rules and workflows to counter this issue

Data integrity and security

- ✓ Centrally hosted systems in 3rd Party, service managed data warehouses have many advantages with regards to resilience, integrity and security
  - Blue chip customers demand the highest standards and therefore all customers can achieve the same standards as the best
  - Compliance with the requirements of ISO27001 provides assurance that the correct processes and equipment are employed

- ✓ Software applications also need to employ encryption methods and robust password security

Enterprise Solution

Business Benefits

Operational benefits

✔ | **Centralised master data**
- Group control over key master data to allow improved reporting such as
  - Products
  - Organisations
 - Event Types (Operational / Downtime etc.)

✔ | **Centralised tariffs**
- Tariff management can be moved to head office to allow for better commercial terms to be agreed
  - Rates can easily be compared across terminals
  - Finance can review and ensure everything that should be charged for is being charged

✔ | **Standardised SOPs through Software**
- Standard rules and workflows throughout the organisation

✔ |Implement global continuous improvement standards such as OEE

IT benefits
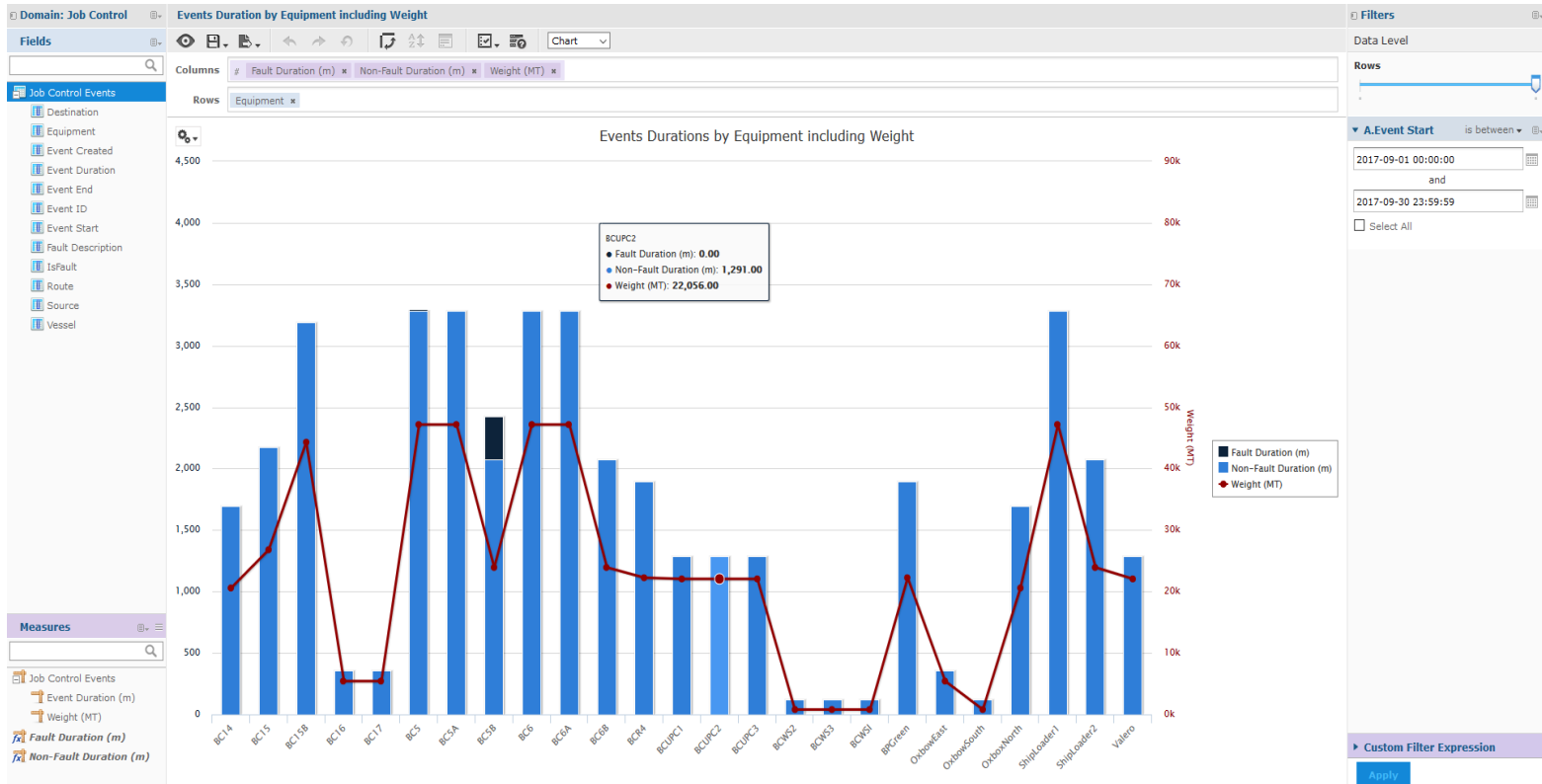
- ✔ **Reduced TCO**
  – Reduction in hardware and software costs
  – Reduced IT administration
  – Reduction in TCO to centralise on-premise is approximately 75%
  – With further reductions of approximately 51% to move a centralised system from on-premise to cloud

- ✔ **Data Integrity**
  – The single greatest benefit of centralising an organisations operational systems is data integrity – one version of the truth

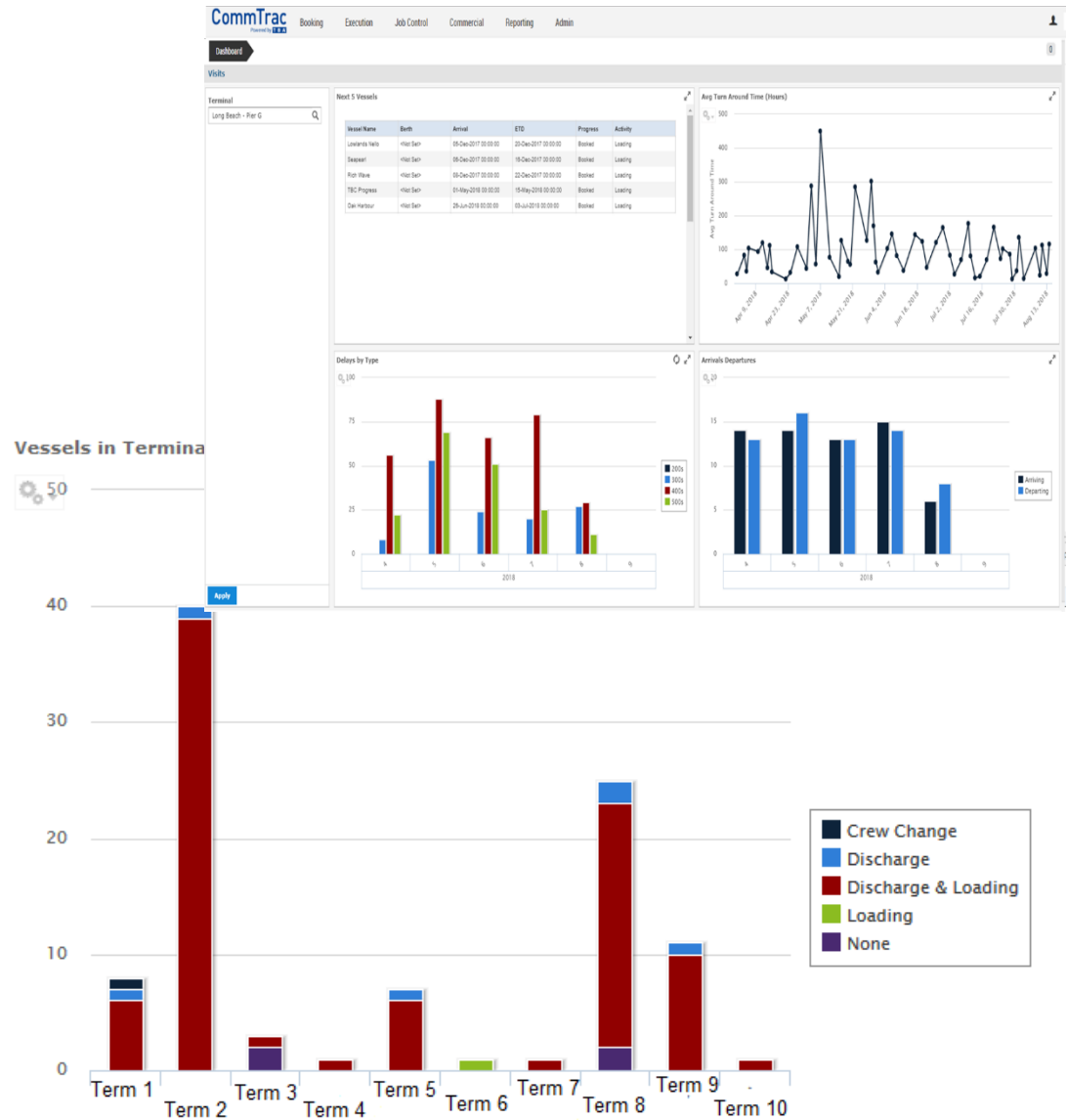- ✔ **Ease of training**
  – It's the same system for everything
  – The learning curve for users is greatly reduced
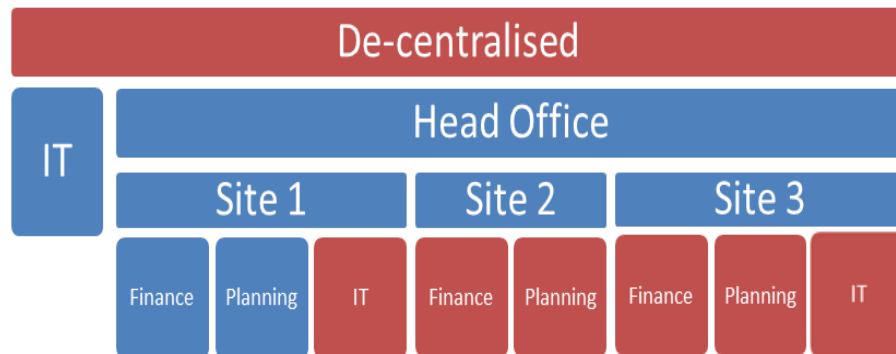 – If all processes are in the same database, then users need only learn one system, not multiple systems

- ✔ **Support**
  – With a centralised system, support is focused on one product. With many databases, even if they are built on the same platform, separate support is required for each.

Single Instance

De-centralised

Head Office

IT

| Site 1 | Site 2 | Site 3 |

Finance | Planning | IT | Finance | Planning | Finance | Planning | IT

✔ | IT, Planning and Finance required at each location

Enterprise

Centralised

IT

Head Office

Planning | Finance

Site 1 | Site 2 | Site 3
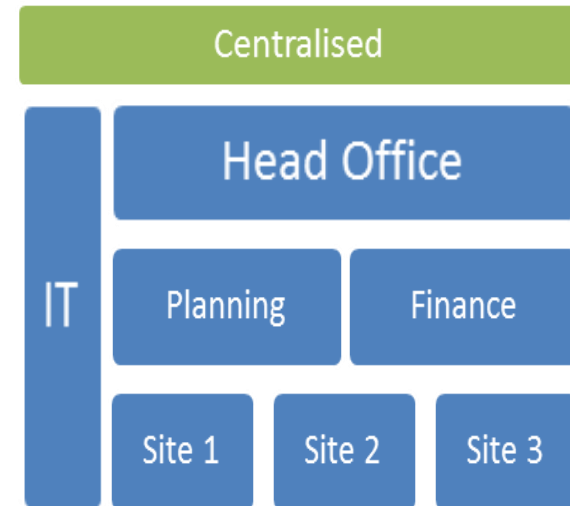
✔ | Centralised IT, Planning and Finance

✔ | Potential for flexible workforce to manage peaks

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✔ | Global view of data

– Stocks and available capacity at location or group level

– Reduces questions and admin work from your customers to the terminal as they have controlled access to the data they need in real-time

✔ | Global customer administration

– Order entry

– Vessel booking and manifest upload

– Truck appointments (haulage)

– Request for services

✔ | Centralised reporting and invoicing

– Consistent structure and look and feel

– Standardised API's to allow integration to customer systems

Conclusions

Centralised systems:

– Provide operational benefits by standardising operating processes and procedures

– Reduce OPEX through organisational restructuring and reduction in administrative work load

– Enable timely decision making thorough visibility of data

– Reduce total cost of IT ownership

– Increase customer experience by providing timely information to improve their planning and execution efficiency

THANK YOU!

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Version history

Version	Author	Reviewer	Date reviewed	Comment