

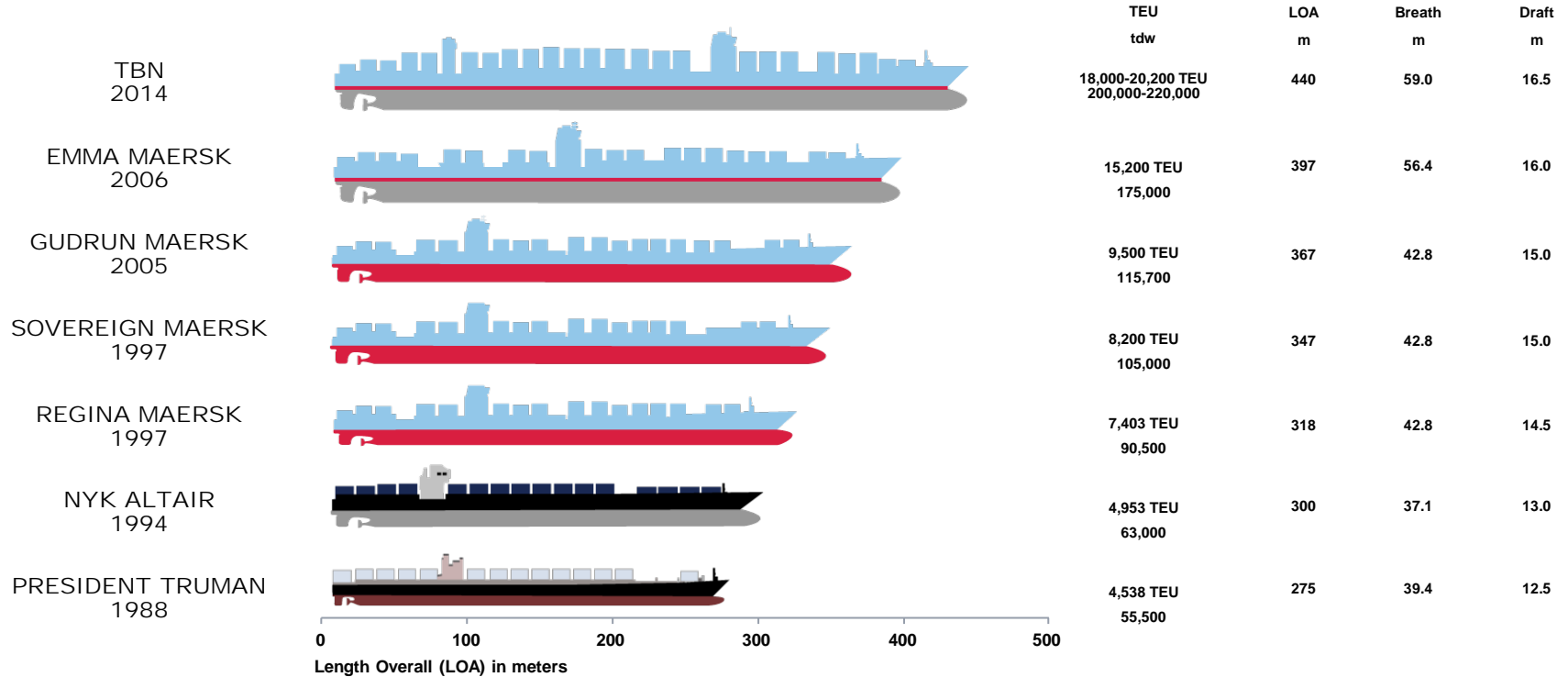
Pulse2013

Optimizing the World's Infrastructure

Cartagena, Crossroad of World Commerce



Container Vessel Evolution 1988 – 2014



© Alphaliner



Cartagena Terminal - Sociedad Portuaria



Cartagena Terminal - Contecar

Main Infrastructure for IT and Operations

IT - HARDWARE

Description	Qty
Servers (Equipment)	143
Cameras CCTV	250
Switches (Network)	87
Routers (Network)	4
Access Points (Wi-Fi)	89
UPS	12
Transfers Switch	13
Radio Links	6
Cooling Systems (Servers)	4
Weight Bridges	8
TOTAL	616

IT - SOFTWARE

Description	Qty
Database Engines	8
WEB Servers	26
Mail Servers	2
Domain Servers	8
iSeries Applications	66
TOTAL	110

EQUIPOS PORTUARIOS

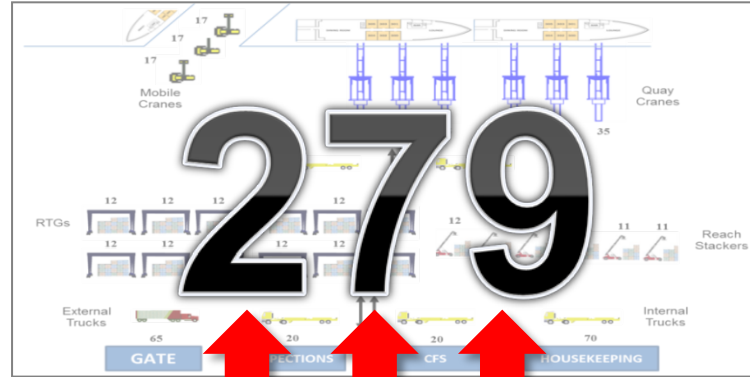
Description	Qty
Cranes	15
Trucks	162
RTG (Rubber Tyre Gantry)	55
Reach Stackers	21
Power Engines	5
Electrical Substations	21
TOTAL	279

1,005

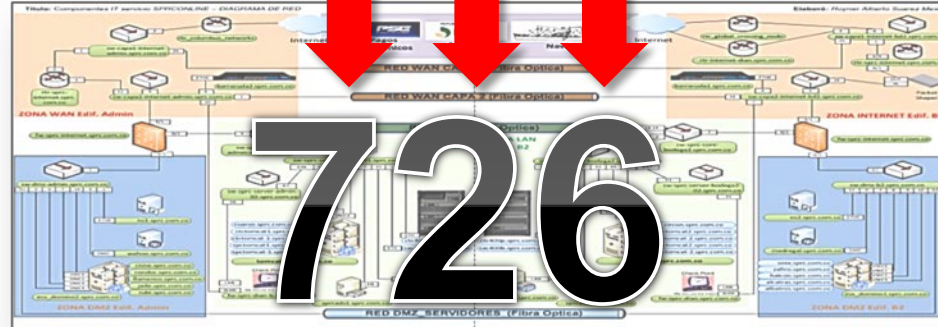
Comply with service level agreements

Container Terminal Operations – Reliability Challenge

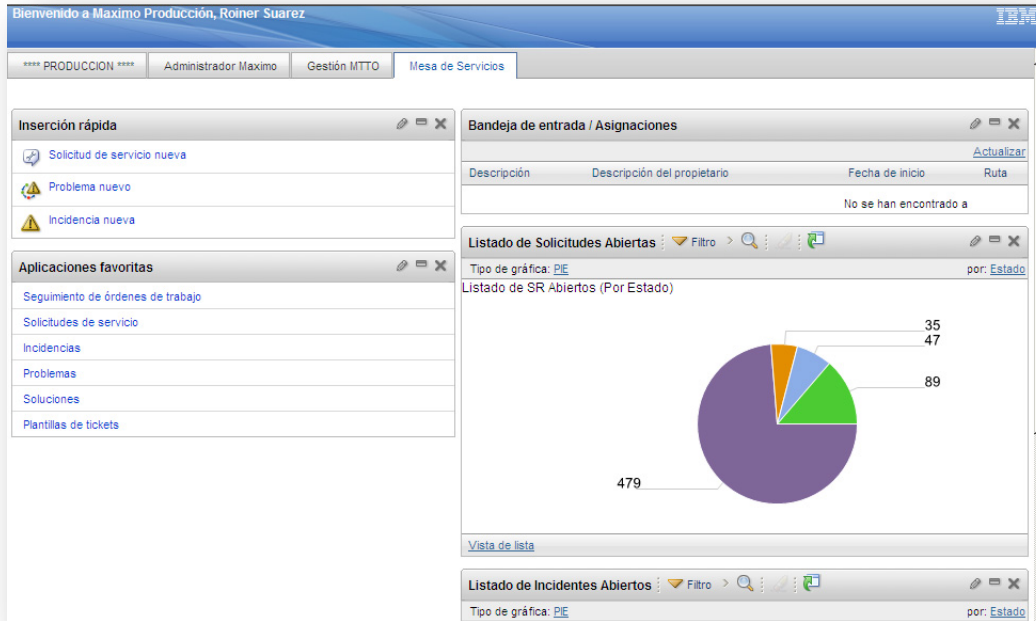
Container
Handling
Equipments



IT Infrastructure



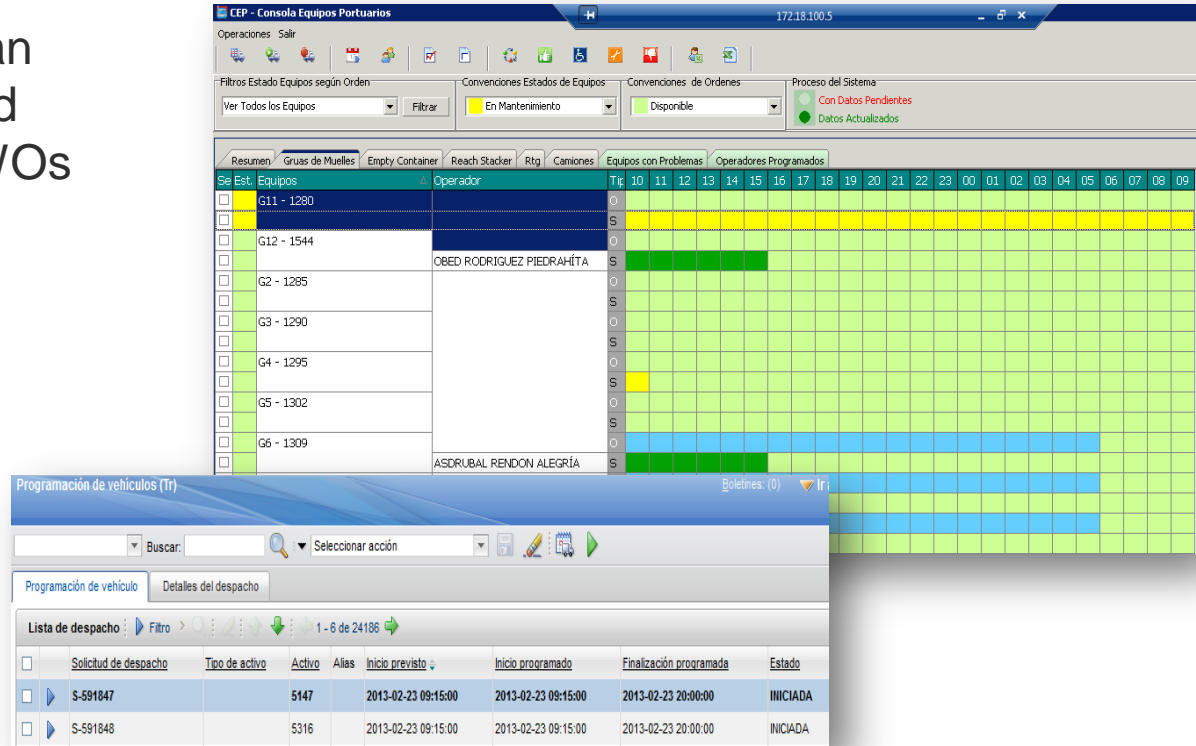
IBM maximo® 7.5 (October 2012)



- Maximo 7.1, implementation lasted 10 months
- Live since October 1st 2010
- Supported and advised by IBM Global Services
- 5 Organizations in 1 Maximo instance, 2 different financial systems
- Two people trained for in house support, improvement and new developments

Equipment Availability - Operations vs. Maintenance

- Quay Crane working plan (WOs) are amalgamated with QC maintenance WOs
- QC status is shown and updated from a central console on “real time”
- QC are dispatched using “Transportation”



Se Est.	Equipos	Operador	Tr	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09
<input type="checkbox"/>	G11 - 1280		O																								
<input type="checkbox"/>	G12 - 1544		S																								
<input type="checkbox"/>	G2 - 1285	OBED RODRIGUEZ PIEDRAHÍTA	S																								
<input type="checkbox"/>	G3 - 1290		S																								
<input type="checkbox"/>	G4 - 1295		O																								
<input type="checkbox"/>	G5 - 1302		S																								
<input type="checkbox"/>	G6 - 1309	ASDRUBAL RENDON ALEGRÍA	S																								

Solicitud de despacho	Tipo de activo	Activo	Alias	Inicio previsto	Inicio programado	Finalización programada	Estado
<input type="checkbox"/>	S-591847		5147	2013-02-23 09:15:00	2013-02-23 09:15:00	2013-02-23 20:00:00	INICIADA
<input type="checkbox"/>	S-591848		5316	2013-02-23 09:15:00	2013-02-23 09:15:00	2013-02-23 20:00:00	INICIADA

Consolidated view of equipment's status, offer and demand

Truck Availability and Dispatch Control

- Trucks are required in quantities and related to QC plans
- Trucks are dispatched by Manpower outsourcing companies
- QC plans, dispatched and available trucks are displayed

CEP - Consola Equipos Portuarios

Operaciones Salir

Filtros Estado Equipos según Orden: Ver Todos los Equipos [Filtrar] Convenciones Estados de Equipos: En Mantenimiento Convenciones de Ordenes: Disponible Proceso del Sistema: Con Datos Pendientes, Datos Actualizados

Operadores Programados Equipos con Problemas Resumen Grupos de Muelles Empty Container Reach Stacker Rtg Camiones Resumen de Grupos y Camiones

Descripción	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03
PANAMAX				2	2	2	2	2	2	3	3	3	1	1	1	1	1
POSTPANAMAX										1	1	1	1	1	1	1	1
SUPER-POSTPANAMAX	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
MOVILES	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Orden	Descripción	Proveedor	Uvi	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03
5-490464	ANUNCIO UVI: C2129 - SOCIEDAD PORTU	IMPOTARJA S.A.		8/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10	6/10
		SUMINISTRO DE SERVICIOS TECNICOS :		3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5	3/5
5-490490	ANUNCIO UVI: 15266 - CCHN VADO LIGUR	IMPOTARJA S.A.					0/4	0/4	0/4	0/4	0/4	0/4	0/4	0/4	0/4	0/4				
		SUMINISTRO DE SERVICIOS TECNICOS :					0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2				
5-490498	ANUNCIO UVI: 14584 - TRANSITOS HSUD	IMPOTARJA S.A.		2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
		SUMINISTRO DE SERVICIOS TECNICOS :		2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3
5-490501	ANUNCIO UVI: 15207 - WESTERHAMM	IMPOTARJA S.A.											0/6	0/6	0/6	0/6	0/6	0/6	0/6	0/6
		SUMINISTRO DE SERVICIOS TECNICOS :											0/8	0/8	0/8	0/8	0/8	0/8	0/8	0/8

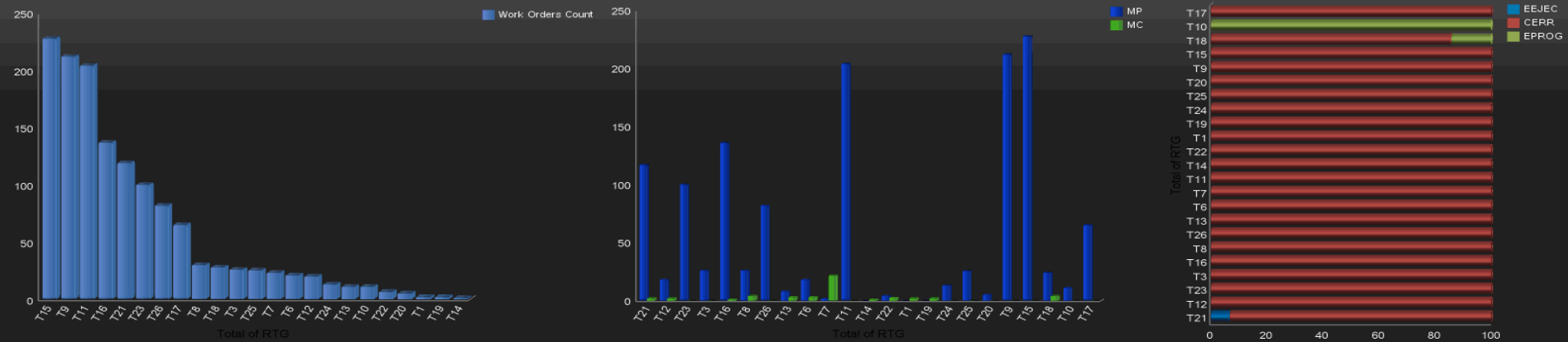
Descripción	Proveedor	Uvi	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03
Despachados / Programados			15/20	15/20	15/20	15/26	15/26	15/26	15/26	15/26	15/26	15/40	15/40	15/40	15/34	15/34	15/34	15/34	15/34
Programados / Operativos			20/93	20/93	20/93	26/93	26/93	26/93	26/93	26/93	26/93	40/93	40/93	40/93	34/93	34/93	34/93	34/93	34/93
Operativos / Existentes			33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94	33/94
Fuera de Servicio / Despachados			1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15

CEP Usuario: GCONSEGRA Rango de Fecha del 2013/02/23 11:00 al 2013/02/24 10:00 11:58:11 Ult. Act. Server CEP 23/02/2013 11:56:

Consolidated view of quantities and status of dispatched trucks

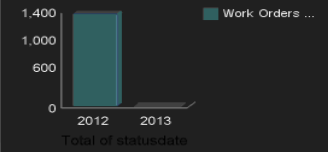
Work Orders Analysis

SPRC Work Orders Analysis



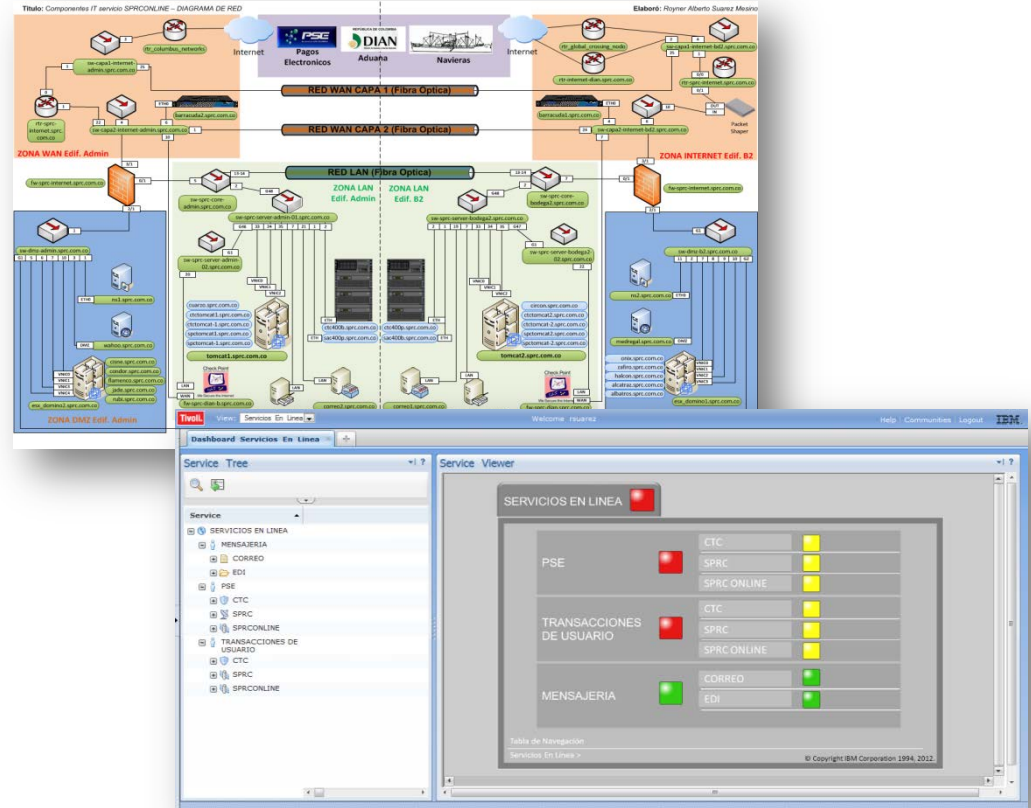
	T21	T12	T23	T3	T16	T8	T26	T13	T6	T7	T11	T14	T22	T1	T19	T24	T25
Total of description	119	20	100	26	137	30	82	11	21	23	204	1	6	2	2	13	25
Pruebas funcionales y registro	8	1	7	2	10	2	8		1		16		1			1	2
Pruebas funcionales y registros					1		1				3						
Prueba funcional y registro	2	1	1	1	2	1	1		1	1	3						1
Verificar ruidos anormales	2		2		2						2						
Pruebas funcionales y registro.	2		3		2		2				2						
Verificar y calibrar holgura de trabajo de los...	1		1		1						2						
Pruebas funcionales y registros.							1				2						
MANTEENIMIENTO PREVENTIVO ILUMINACION ...	1		1		1						1						
Verificar y cuantificar hilos rotos	1	1		1	1	1			1		1						1
Toma de diametro de guaya	1	1		1	1	1			1		1						1
Realizar limpieza de sesion de guayas	1	1		1	1	1			1		1						1
MANTEENIMIENTO PREVENTIVO TOMA DATOS ...	1	1			1						1						1
Mantenimiento lamparas vigas Trolley	1		1		1						1						
Verificar caja de conexiones motor actuador	1	1		1	1	1			1		1					1	1
Verificar funcionamiento del actuador	1	1		1	1	1			1		1					1	1

	2012	2013
Work Orders Count	1,364	8



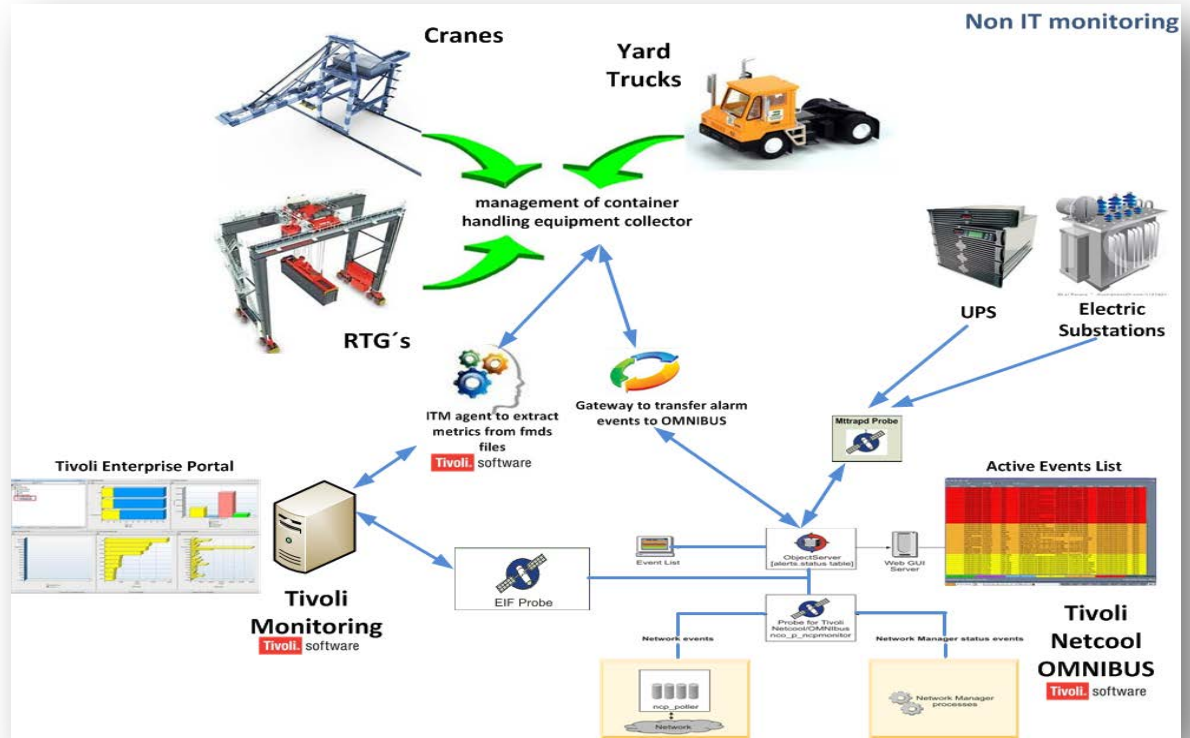
Tivoli - ISM Implementation

- IT related Services
 - More “complex” one
 - 4 months implementation time
- Maximo Integration triggers automatic WOs
- Learning process for IT people and starting point for rest of business areas

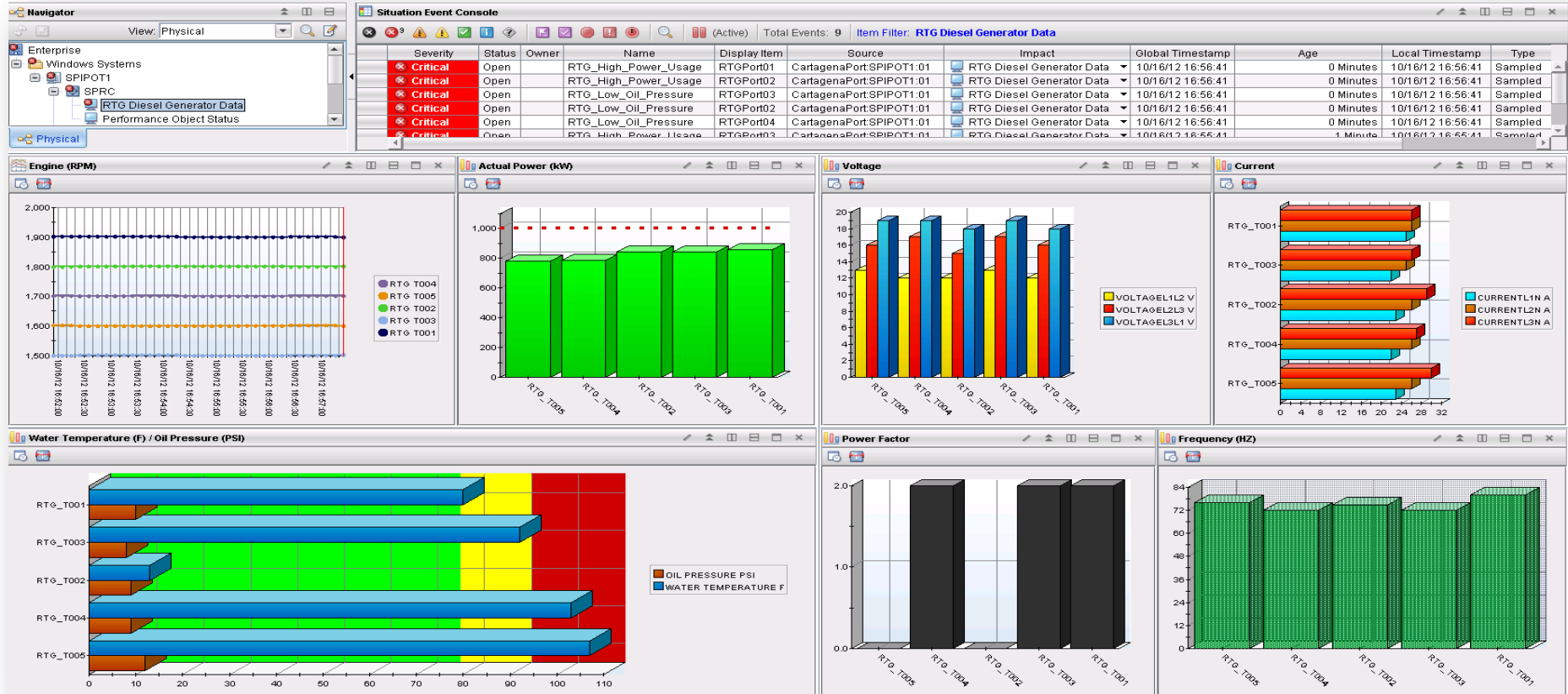


Monitoring of Non IT Equipment

- Non IT equipment metrics and events collector
- Business Services Dashboards combining IT and non IT assets
- Predictive Analytics for preventive maintenance
- iLOG for events correlation and automation



Cranes (Non IT Equipment)



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