

RESOURCE INVENTORY



Critical

Dependable
Technologies
For Critical
Systems

A Pragmatic Approach for a **Complex Challenge.**



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The Challenge

Context

- Telecom, Energy and many other business support their operations on physical resources spread over a country wide area.
- These resources provide a customer service and need to be managed, monitored and maintained.
- As network complexity increases the amount of equipments and support systems tend to increase exponentially.
- With this large amount of physical resources deployed in every corner, the existence of reference information is crucial.
- The knowledge of the relations between resources add a significant meaning to the information and to what can be done with it.
- The task of providing a service has become more complex as offered products tend to aggregate several services supported jointly by a set of heterogeneous resources. Also...

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The Challenge (cont.)

Context

- Fulfillment and Assurance of the provided services gained a level of complexity that makes it impossible to be done without a significant amount of meta-data supporting human tasks.
- The pieces of incomplete resource information can no longer be spread over a dozen managing systems...

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Challenge

- Build a Resource Inventory System able to aggregate information on resources (logical and physical), and to correlate service instance (or global service) assigned to a specific customer (or serving an wide area).
- Making it simple, yet flexible, and...
- And ensure that all resource management aspects and recommended process support will come as a plus.

Standard Approach, yet simple

- **Based on GB922 “*Shared Information/Data (SID) Model*” form TMForum**
- **Using the concepts of GB922 but enabling customized naming and structuring of information and metadata**
- **Simple approach for a simple use and simple data extraction enabling simple information gathering**
- **eTOM, Business Process Framework (GB921) process enabler...**



Hierarchical Inventory

Location (Geographical & Non-Geog.)

- An hierarchy of user defined Typed Locations is the basic concept for inventory organization.
- User hierarchically organized Locations (places) to meet organizational and geographical structuring needs.
- Locations are resource containers for capacity assessment and decision on fulfillment activities among others...
- Locations are used as the basic concept to restrict information access.
- Location details inherited from parent Location enabling complete and easily maintained information.



Hierarchical Inventory

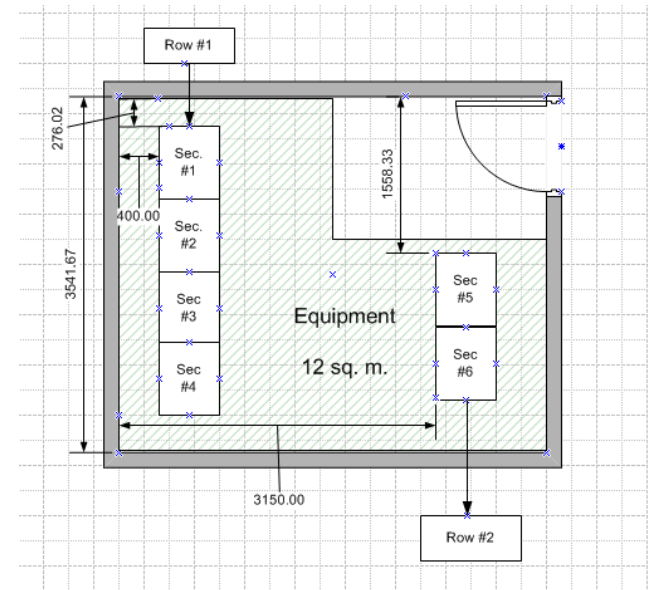
Location (Geographical & Non-Geog.)

- Geographical Locations (places) referenced on GPS coordinates.
- Non-geographical Locations referenced based on parent location reference point.



Location (Geographical & Non-Geog.)

- Integration with COTS maps solution
- Integration with COTS CAD solution



Location (Geographical & Non-Geog.)

LOCATIONS MANAGEMENT

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SIGA - Sistema Integrado de Gestão de Arquivo

File Tool Help

Search Detail

SIGA

- Administração
- Pedidos
 - Listar Pedidos
 - Novo Pedido
- Pedidos Arq
- Gestão
- Entidades
 - Clientes
 - Unidades Orgânicas
 - Séries
 - Locais**
 - Contentores
 - Conteudos
- Operações
 - Acondicionar
 - Acondicionar (UIs)
 - Conteúdo e Acondicionar
 - Instalar
 - Movimentação
 - Embalar Diarios
- Gráficos
- Guias
- Relatórios

Local pai: Estante 2

Tipo local: PRATELEIRA 12X2X1 Tipo UI: Caixa Terminus

Nome: Prateleira 2 Código barras: 01.0000071156

Código público: P002 Código completo: A001.N001.2002.R002.E002.P002

Mínimo notificação: 0 Data Destruição: 04-03-2015

Acessibilidade: Reduzido Cliente reservante:

Espaço livre: 0 0

Espaço ocupado: 26 26 % esp. ocup.: 100

Contentores/Unidades Instalação

Cód. bar...	N. Caixa...	Data De...	Data M...	Estado	Criado p...	Criado e...	Tipo UI	Cd
02.000102...		08-08-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		25-09-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		28-08-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		09-08-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		28-08-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		21-01-2015	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		22-01-2015	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		21-01-2015	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		24-01-2015	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		31-01-2015	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		06-04-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		28-03-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		20-04-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		01-05-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI
02.000102...		08-05-2014	Sem limite	Instalado	X912580	30-03-2007	Caixa	UI

Buttons: Edit, New, Cancel, Apply, Alterar C.B., Status

User: siga | URL: http://192.168.187.75/SIGABCP-BUI-DL10-003-BEF_TEST | Database: SIGABCP-DL10-003-BEF_TEST | Server: 192.168.187.74\developer

Hierarchical Inventory

Resource (Physical & Logical)

- An hierarchy of user defined Typed Resources is available to cover the full set of equipments, CPEs, network paths, junctions, ports, etc used to deliver services.
- User defined relations:
 - between physical Resources to meet vendors equipment specific organizational structuring needs.
 - between physical Resources and logical Resources.
 - between logical Resources to meet service specific needs and enable capacity assessment.
- Resource Inventory automatic data gathering and consolidation:
 - Configurable, grammar based file synchronization (Multi NMS format support).
 - Web-based interface for online integration with external NMS (Network Management System).

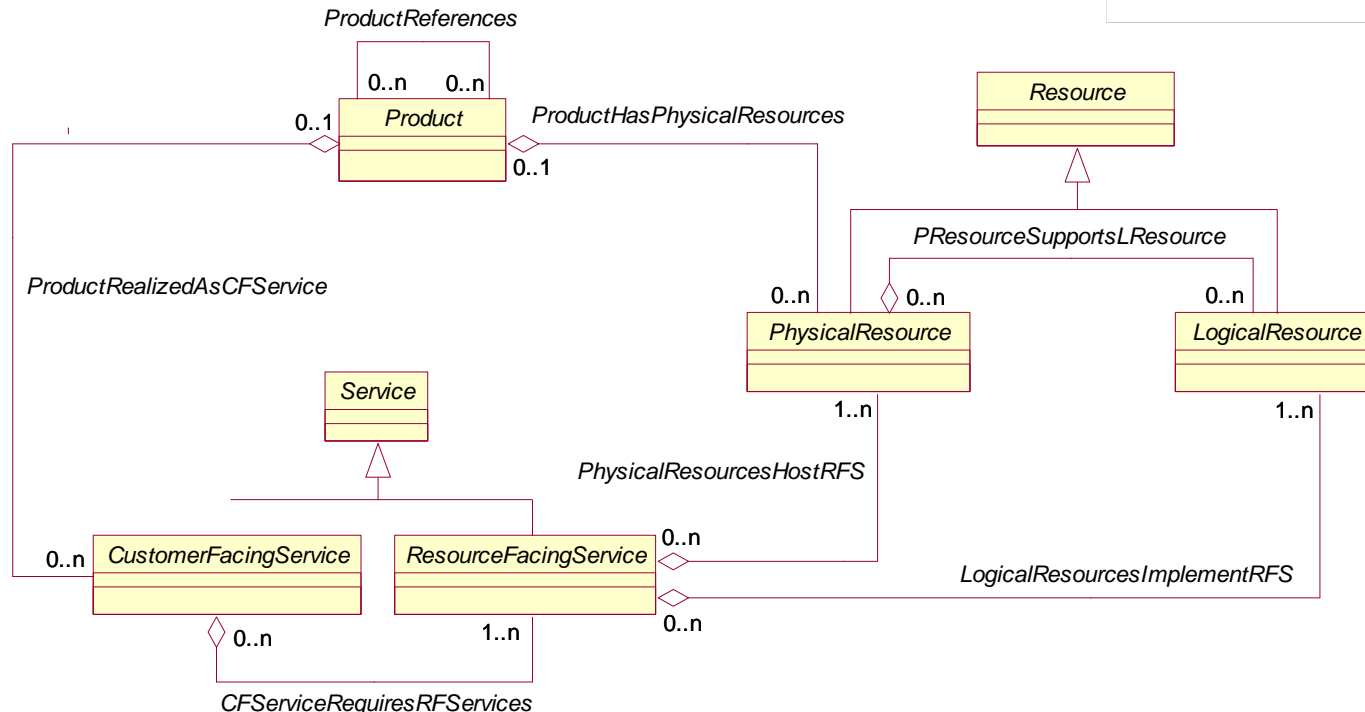
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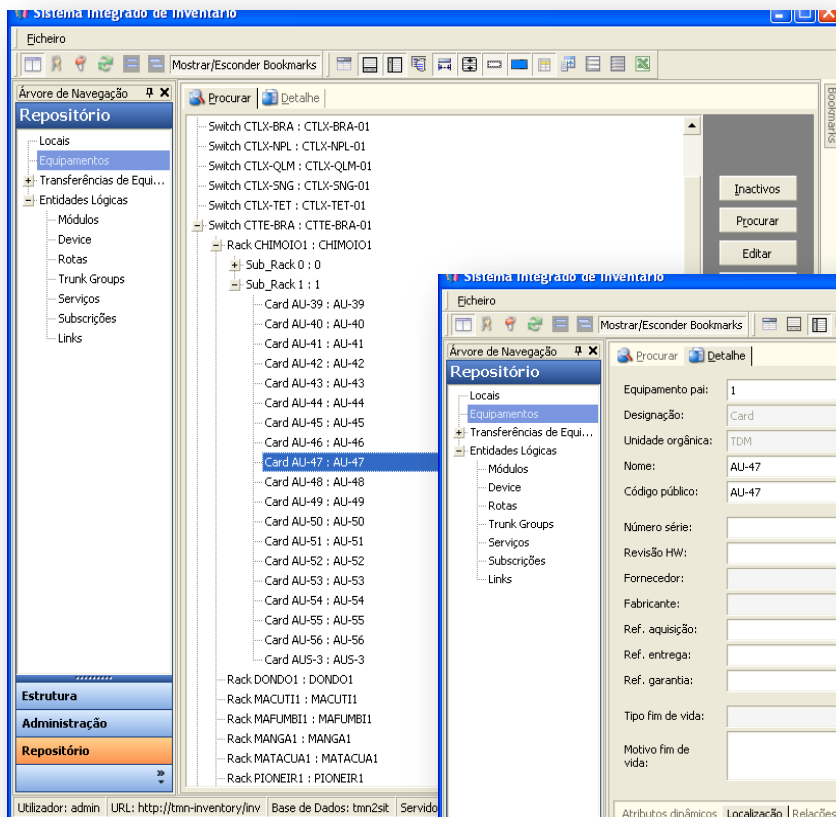
Hierarchical Inventory

Resource (Physical & Logical)

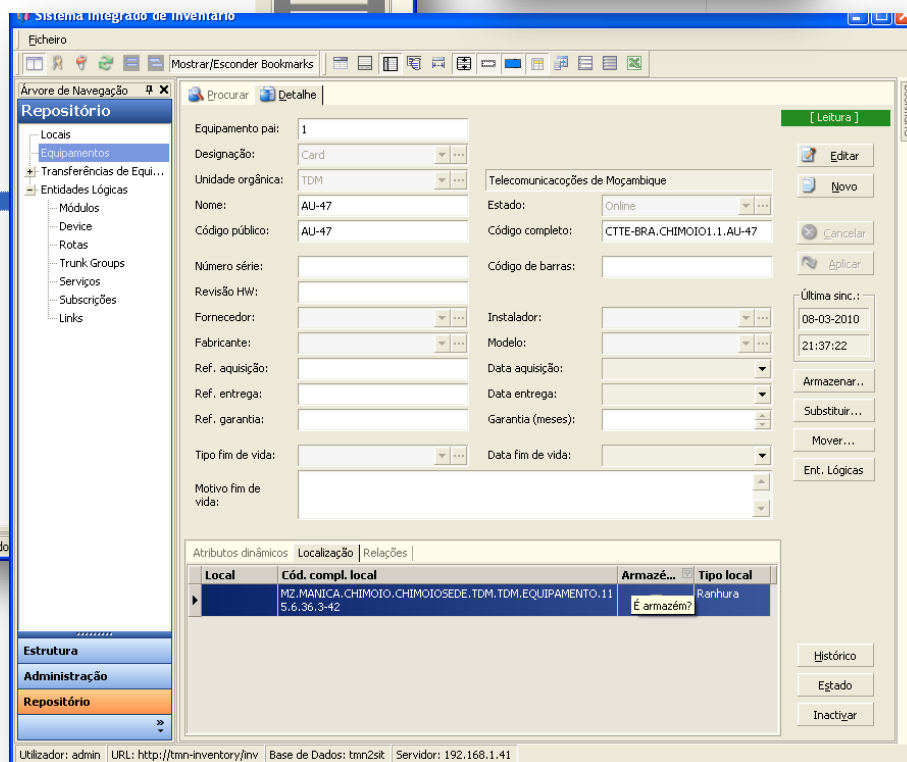
- Ability to map Services to physical and logical Resources.
- Ability to map Customer Service down to the physical Resources used (each domain: Resource, Service, Product can be added in a different step).



Resource (Physical & Logical)



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Flexibility & Scalability

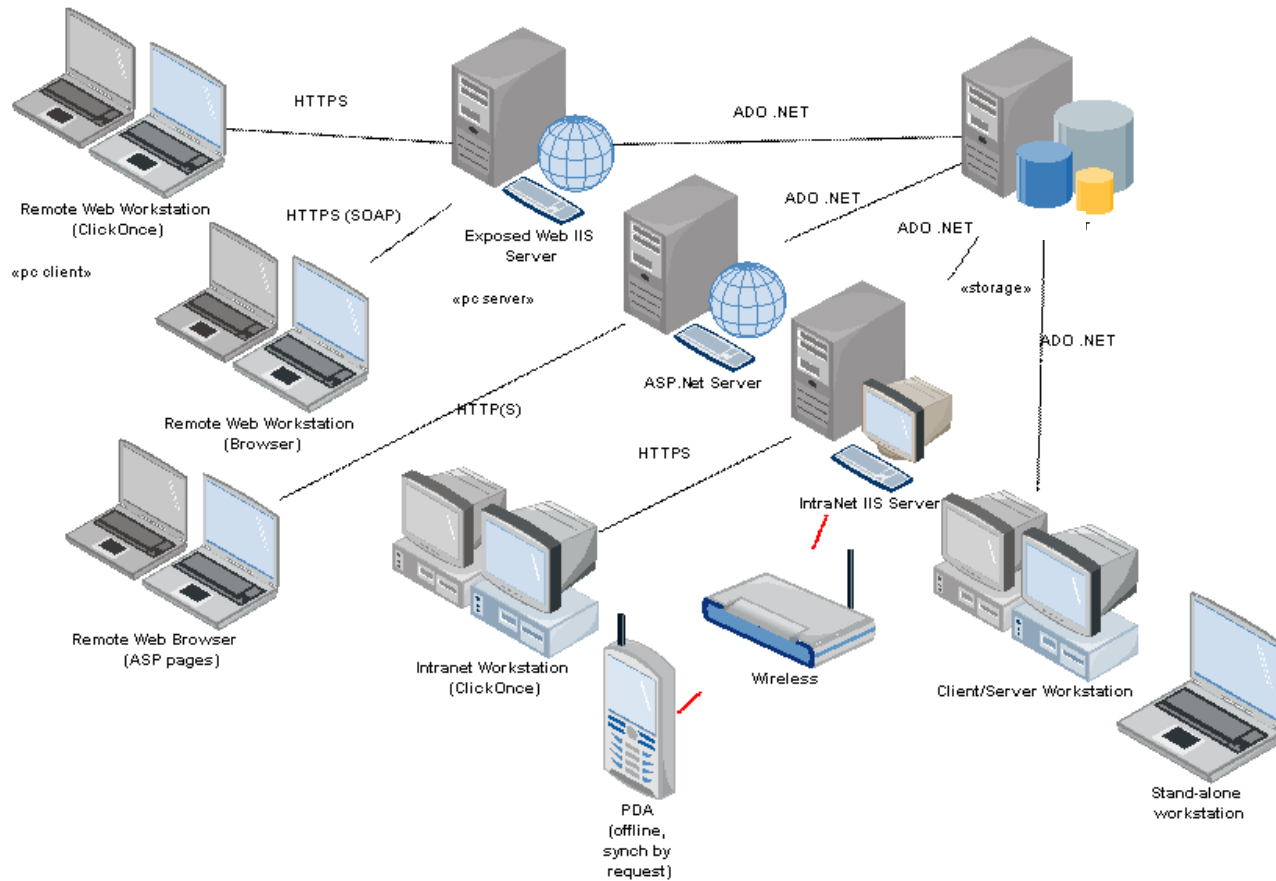
- User defined functional access/limitations
- Access data per Organic Unit / per Location
- User defined GUI Labeling and Menu Items organization
- Inventory objects and relations based on types
- Dynamic Arguments on types and/or on objects
- Data insertion/migration via template or via input file
- Easy GUI Adaptation for specific needs

- Changeable DBMS engine for bigger challenges
- Data segmentation to ensure performance



Deployment Approaches

- Flexible solution than enables several operation scenarios:



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Deployment Approaches

Multi-environment

- **ClickOnce** (Zero installation and maintenance effort)
- **Client-server** (Better performance)
- **Stand-alone** (Portability, Off-line mode)
- **SOAP server** (Integration easiness)
- **ASP .Net** (Accessibility)

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Functionalities

- Data loading templates
- External systems interface
- Access by Internet and Extranet
- External API for other applications
- Network automatic synchronization
- Etc.

Steps to bring it live

1. Definition of scope (domains)

2. Metadata, information gathering on:

- a) Location types and Resource types
- b) Types characterization / data member definition
- c) Vendor specific per type argument (data member) identification
- d) Organic Units and Locations
- e) NMS Interfaces and Files available, format ICD
- f) Costume relations

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3. Per type analysis of specific interface (Graphical / Synchronization) needs

- a) Detailed spec of custom ADAC5 data templates to be added
- b) Detailed spec of grammars needs based on NMS's file ICD

4. Per type analysis of specific interface (Graphical / Synchronization) needs

- a) Users, Organic Units (list and user members) and Locations
- b) Parent Physical and Logical Resource List and source of detailed information (identify source NMS/database/Excel sheet)
- c) Costumer and services per costumer (reference database(s) – not mandatory)

Steps to bring it live (cont.)

5. **Configure and customize solution**
 - a) Factory work on the solution (if necessary)
 - b) Solution administration teams trained in the customization process.
6. **Deploy and validate the solution in pre-production mode, full functional (full loaded with all the baseline data)**
5. **Final user training sessions**
6. **Bring the solution to production mode and live**
7. **Further customize (back to step #1 on additional domains)**

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