eBAM
extended Business Activity Monitoring

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Agenda

1. Intro to eBAM Project
2. Architecture and functionalities
3. BAM & Business Intelligence
4. Description of a real Use Case
5. Demo of eBAM
6. Conclusion

Why eBAM and SOA ?

- The term "business activity monitoring" was originally coined by analysts Gartner, Inc. and refers to the aggregation, analysis, and presentation of real-time information about activities inside organizations and involving customers and partners.

  http://en.wikipedia.org/wiki/Business_activity_monitoring

- In service-oriented architectures, a component of process analysis is particularly relevant since:
  - It provides real-time information on the state of processes/services
  - It identifies problems and new business opportunities
  - It supports managers in their decision making and it starts automatic actions through events, dashboards and KPIs
  - It performs historical analysis in order to identify critical situations in advance.

... eBAM

- eBAM is a monitoring platform with analytical functionalities
- It is a component of Eclipse project Service Oriented Architecture
- It supports: services, processes, applications and infrastructures
- The project aims to provide both runtime and support components.

- …..First release : 0.7.0 on 29th September

Functionalities

- Logic-event-based real-time data management.
- It allows to gather data from heterogeneous sources, distributed on different types of adapters.
- It includes a rules engine and it offers the opportunity to use a CEP (Complex Event Processing) engine, which allows to set up alarms and events
- Definition of alarms and SLAs
- Monitoring console and control on processes and services.
- Analytical meta-model with historical data analysis.

Relevant Technology Aspect

- Use of OSGi technology (Equinox)
- Definition of Adapters to read the specific data on each channel: JDBC, File, JMS, SOAP...
- Modular architecture: Adapter Data Flow, Event Manager, Meta model, Dashboard service, Alert service, Rule Engine.
- Projects used in Eclipse: EclipseLink, TPTP, BIRT.
- Modular integration of different rules engines through OSGi technology.

Architecture
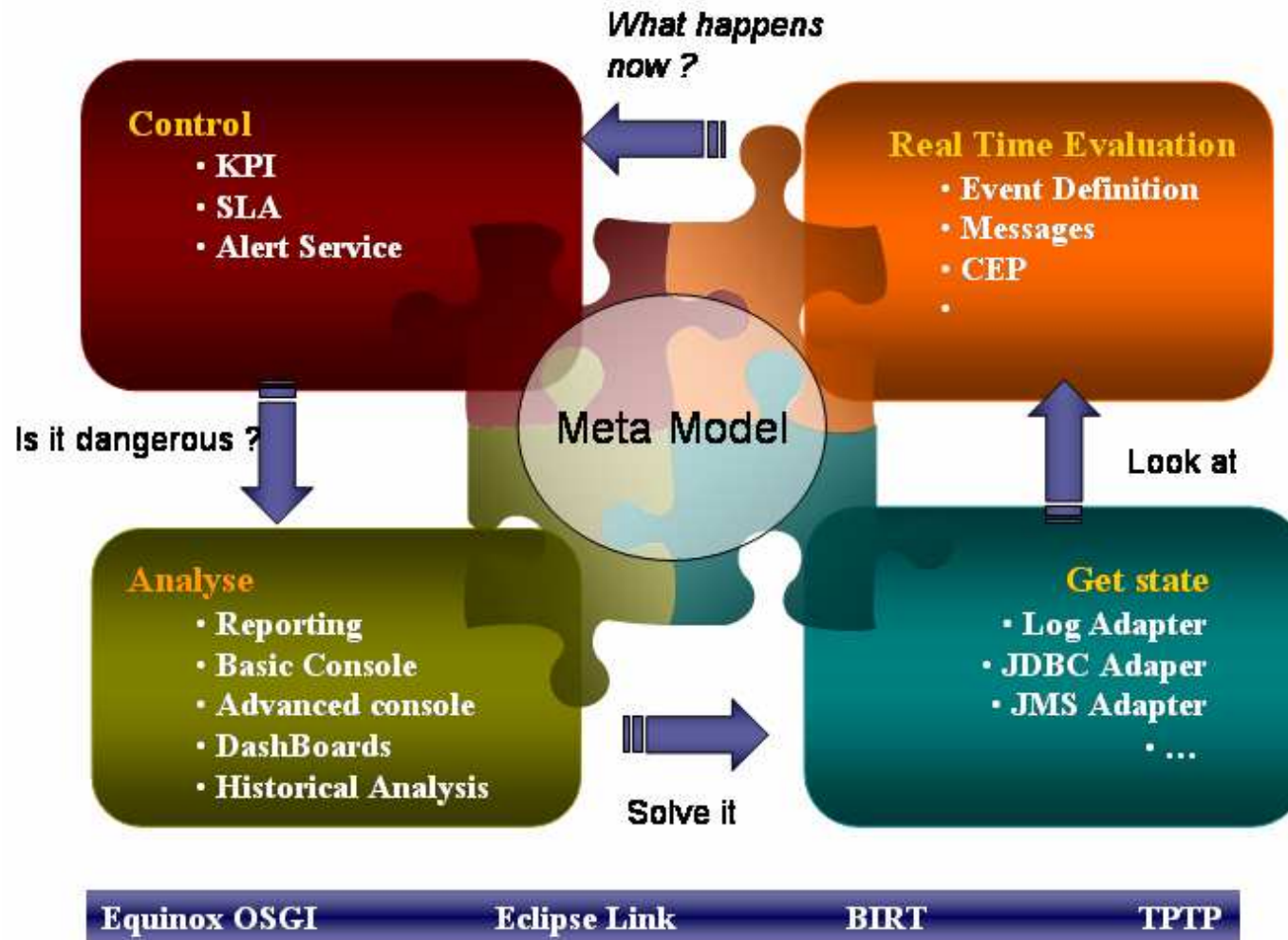
Main Components

Designer to configure the meta-model:

- Definition of services, processes, etc.
- Definition of messages, events
- Definition of rules, alarms, SLAs

Runtime components:

- equinox Server for real-time data management
- Meta-model to manage both configuration details and data.
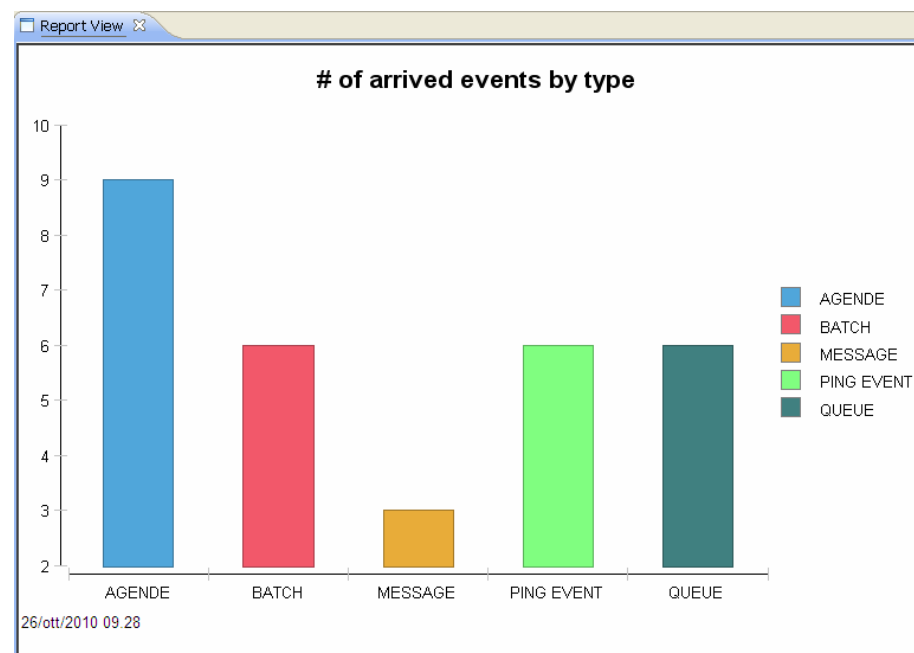- Reports for data analysis.

Designer

- eBAM provides a wide range of wizards for platform configuration
- Released as Eclipse plug-in
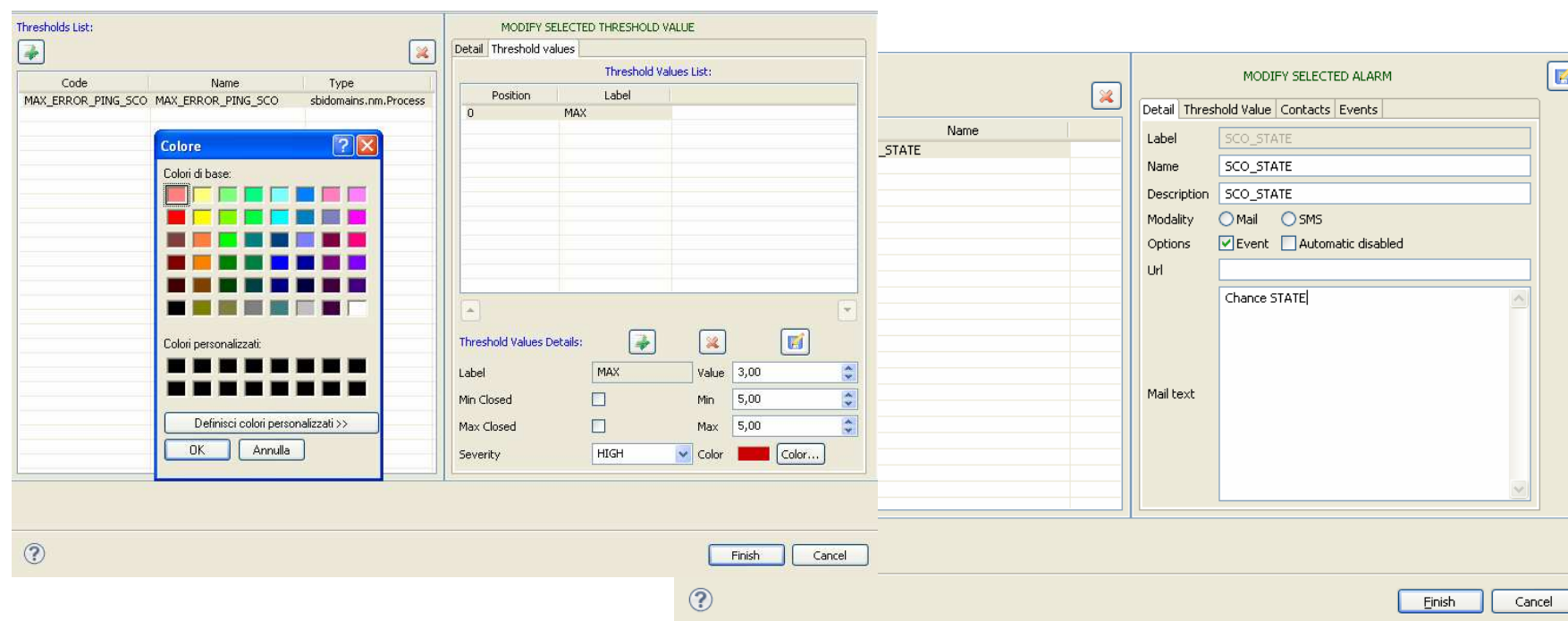
Run Time components

- The runtime is released as Equinox server
- Dashboards and reports allow to analyze incoming messages and upcoming events

- All components share the same meta-model

Complex Event Processing

- This technology identifies patterns which are set on a large amount of data in real-time.

- It is useful to monitor events on heterogeneous data sources (databases, network, RFID…)

- It allows data analysis without saving them on the DB

- … Integration with other external engine like Esper or Drools

- Now we have released a BASIC ENGINE that it will evolve in the next release of eBAM.

Basic Engine

- eBAM default settings include a basic CEP engine.
- Useful to identify some simple events.
  - ◆ Number of messages belonging to a certain category
  - ◆ Incoming messages of a certain type

- It uses regular expressions to identify messages
- Configurable through a graphic wizard
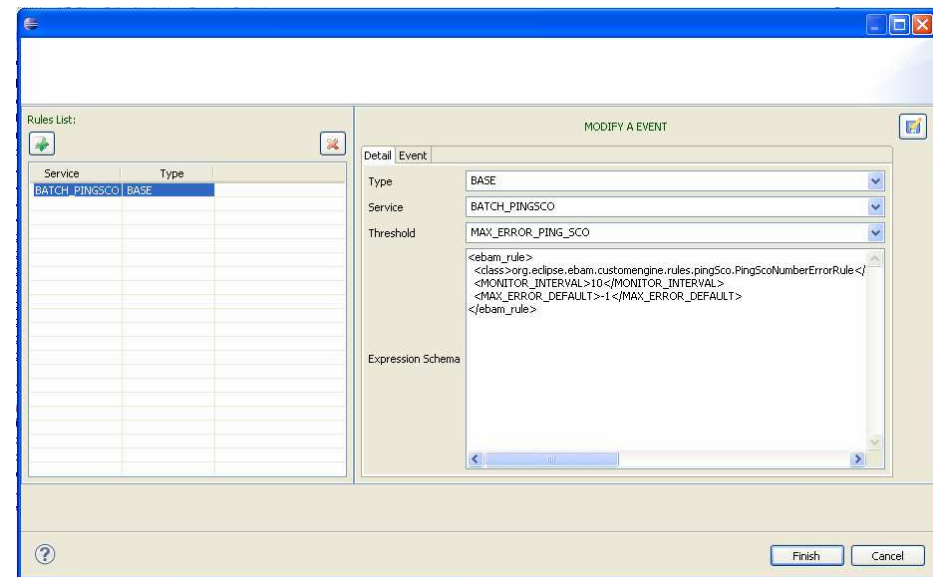
BAM & BI ... the Real-time BI

Real-time business intelligence is the process of delivering information about business operations as they occur.

*In this context, real-time means a range from milliseconds to a few seconds after the business event has occurred. While traditional business intelligence presents historical data for manual analysis, **real-time business intelligence compares current business events with historical patterns to detect problems or opportunities automatically**. This automated analysis capability enables **corrective actions** to be initiated and or business rules to be adjusted to optimize business processes.*

http://en.wikipedia.org/wiki/Real-time_business_intelligence

eBAM & SpagoBI .. Enable the Real-time BI

- The integration between eBAM and SpagoBI (www.spagobi.org) allows the extention of eBAM functionalities in terms of data visualization.

- SpagoBI can be employed to:
  - ◆ Create real-time Consoles
  - ◆ Create Dashboards
  - ◆ Create Charts
  - ◆ Manage batch processes

SpagoBI
Open Source Business Intelligence

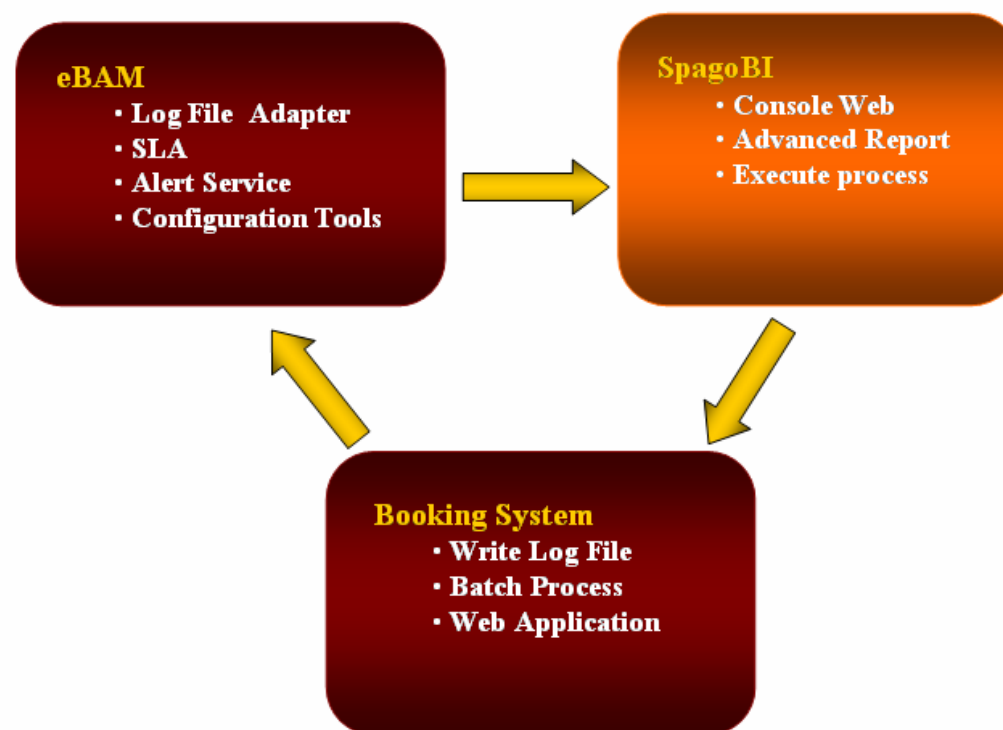***SPAGOBI – eBAM Enterprise/Supported Version***

eBAM & SpagoBI .. Enable the Real-time BI
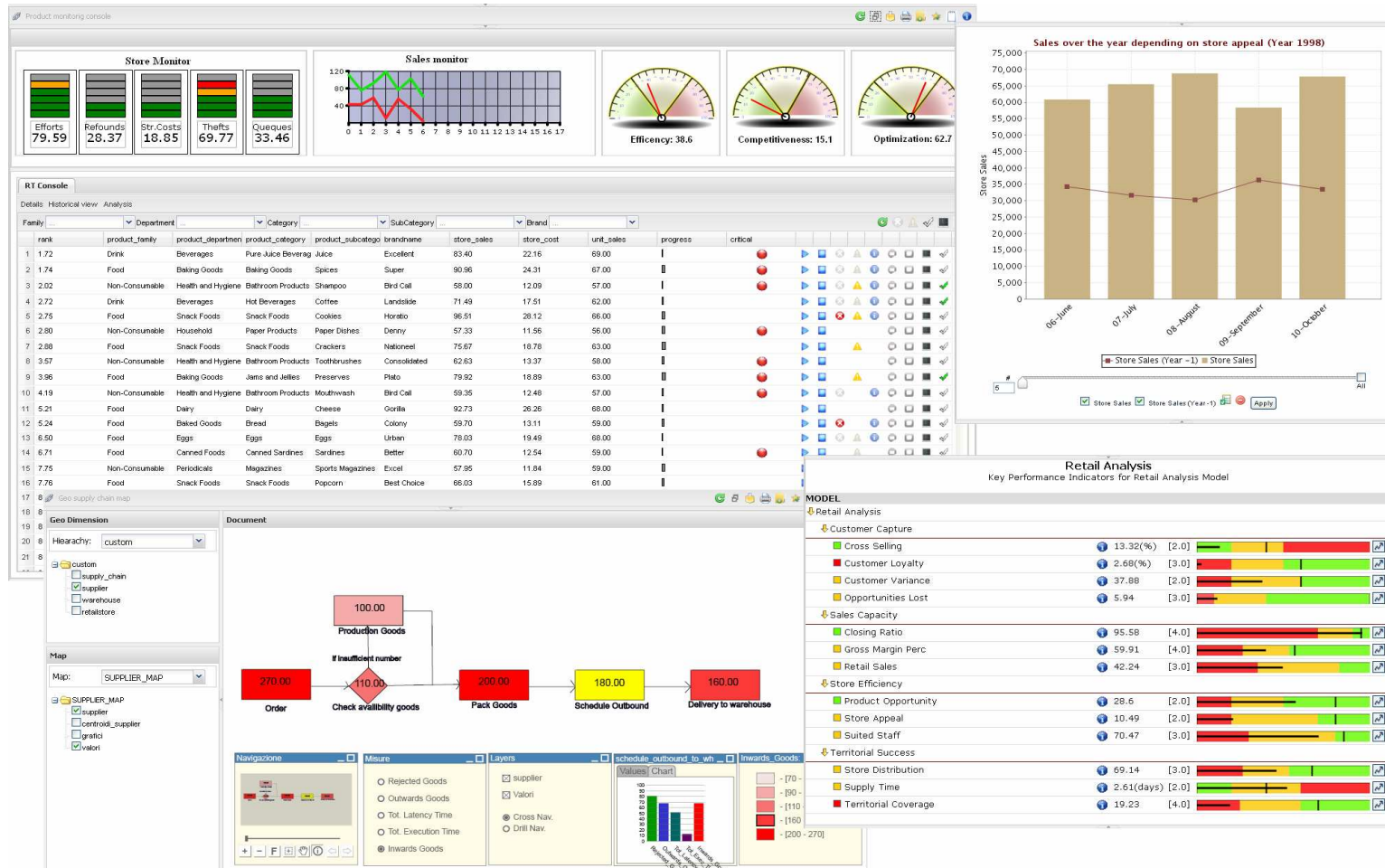
Monitoring on reservation Systems
... A real use case

- eBAM and SpagoBI platforms have been used to develop a portal allowing to perform on-line reservations of healthcare services at the AUSL (Italian Public Healthcare companies) of one the largest regions in Italy.
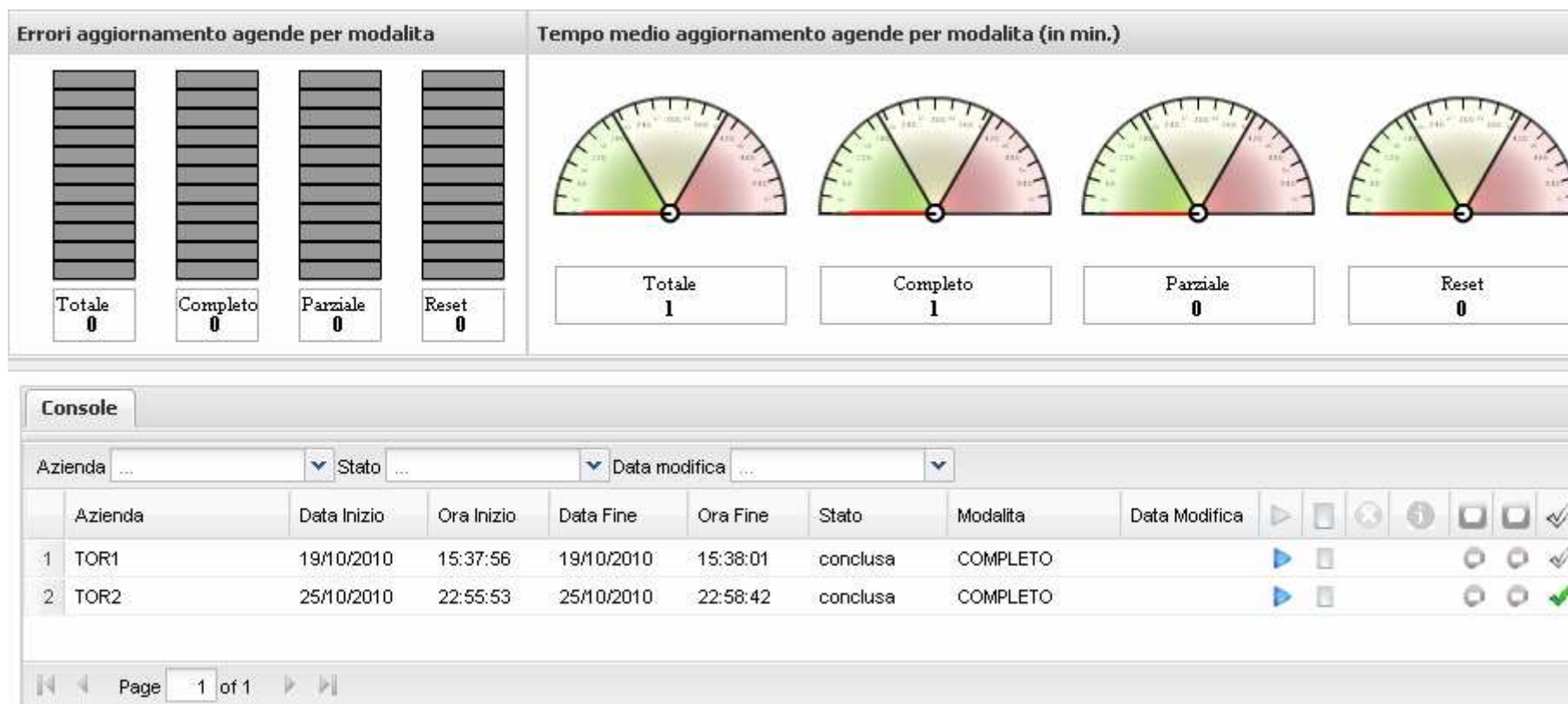

eBAM
- Log File Adapter
- SLA
- Alert Service
- Configuration Tools

SpagoBI
- Console Web
- Advanced Report
- Execute process

Booking System
- Write Log File
- Batch Process
- Web Application

Monitoring on Reservation Systems
## ... Main aspects

- New concept of real-time web console implemented in SpagoBI through AJAX technology
- Batch processes are executed and monitored
- Monitoring of the operativeness of citizens and operators
- All messages are stored into the historic Data Warehouse
- Use of the CEP engine in order to identify critical situations
  - ◆ Sending alarms, if the status of batch processes changes
  - ◆ Notifying critical situations, if a relevant number of errors are detected over a certain lapse of time

Monitoring on Reservation Systems

- SpagoBI Console can be employed to monitor the messages that are managed by eBAM

Monitoring on Reservation Systems …The web console
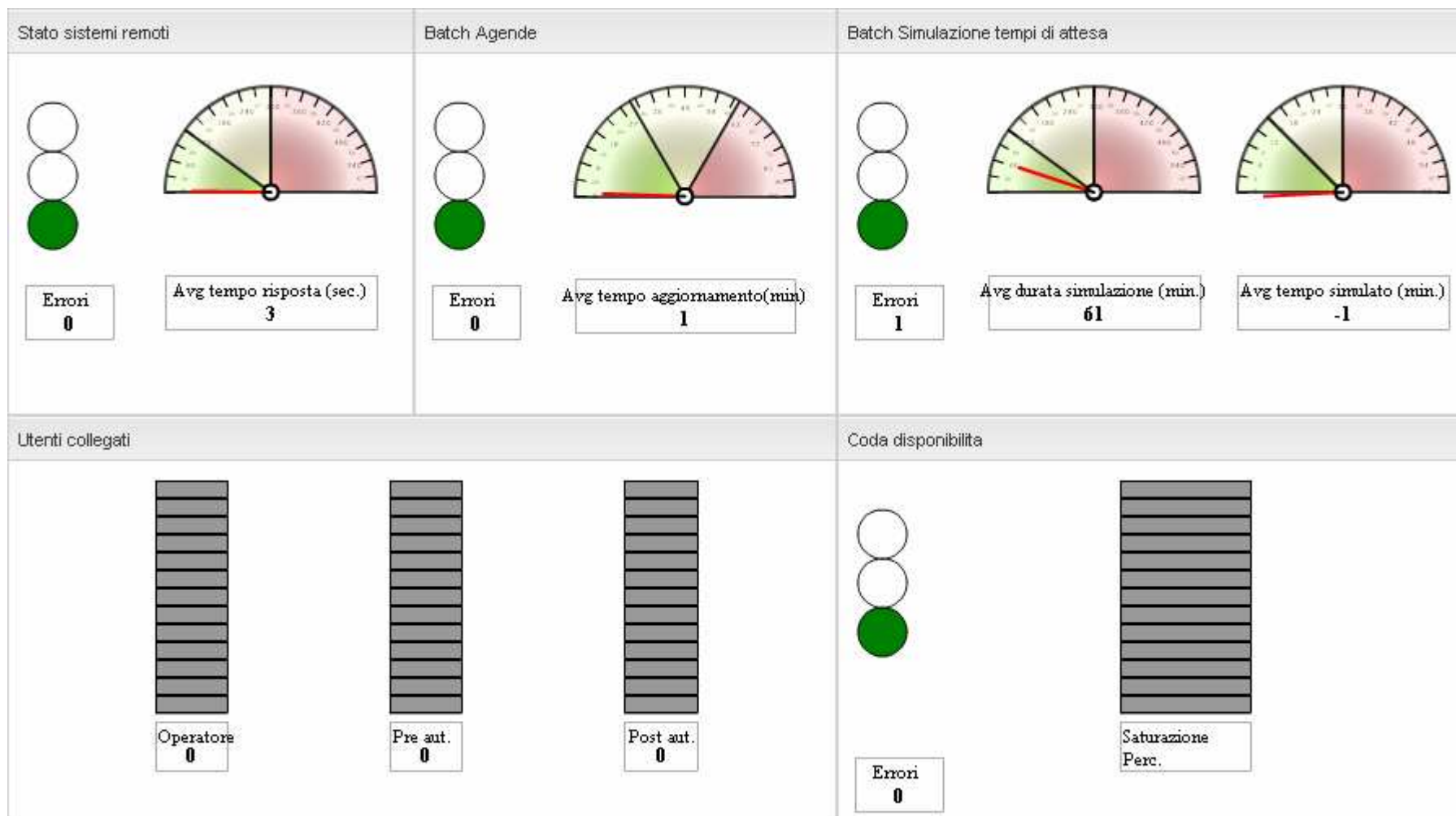
eBAM DEMO

Next step ... 2010

- Next release : *1.0.0* in December

New functionalities:

- Wizard definition of the basic engine rules
- Definition of the historical data model
- Definition of the graphics interface as RPC

Road Map 2011

- Integration of CEP Esper / Drools

- Internal Cache

- Configuration data Import/Export

- Transformation of XST messages

- New Adapters: JDBC, JMS

- Integration of CBE, used as the standard for message definition.