unleash the power of manufacturing services

cmFOUNDATION’S NEXT GENERATION MANUFACTURING ARCHITECTURE enables total leverage of interoperable services, packaging business processes through:

- **Service Interface**
  - Single point-of-entry for service requests

- **Orchestration services for multi-purpose use**

- **Multi-level cross-cutting functions**

- **Extensible manufacturing rich object set**

- **Next Generation User eXperience**

- **End-to-end seamless integration of manufacturing solutions**

- **ERP integration**

- **Multi-site integration**
POWERFUL ORCHESTRATION
From Web services to business flows

BUSINESS WORKFLOWS is the architecture layer that allows complex business processes, working on top of internal or external services, enabling composition of Web services into business flows.

ORCHESTRATE ALL DIFFERENT MANUFACTURING INSTRUMENTS
- Automatically collect data from Equipment
- Verify non-conformance compliance
- Check Maintenance plan
- Get consumables lot ID
- Generate ERP orders
- Check lot integrity
- Verify SPC rules
- Get user input
- [...] Many business processes involve multiple steps that must be performed in the correct order and orchestrated in different workflow forms.

MULTIPLE LEVEL BUSINESS WORKFLOWS FOR DIFFERENT SCENARIOS
- Pre and post transaction evaluation and actions within main transaction context
- Tightly coupled, short running, stateless workflows
- Loosely coupled, long running, stateful workflows
RICH, REUSABLE, EXTENSIBLE OBJECT MODEL
From a rich standard model to the business unique model

MODULARITY
CUSTOMIZATION
EXTENSIBILITY

Windows Communication Foundation
orchestrating, interoperating, integrating, customizing

Business Framework
- Meta-data
- Attributes
- History
- Relationships
- Context Resolution
- Exception Management
- Security
- Logging
- Configuration
- Common utilities

Data Access Layer

- Feature-rich, meta-data driven, high-volume transaction oriented platform
- Fully extensible rich base manufacturing objects
HIGH-AVAILABILITY, LOAD BALANCING & SCALABILITY
World Class Reliability and High-performance Architecture

HIGH PERFORMANCE SCALABLE SOLUTION, BASED ON INTEROPERABLE WEB SERVICES
Scale your HW, according to the manufacturing needs, at any time, with no production impact

- WORLD CLASS PERFORMANCE, RELIABILITY AND SCALABILITY
  Usage of standards and proven technologies for load distribution and high availability

- DESIGN FOR PERFORMANCE
  Scalable, loosely coupled service-based solutions
  Smart database partitioning

- LOW TOTAL COST OF OWNERSHIP
  Reduced 3rd party licenses
  Easy administration
  HW scaled according to manufacturing needs
  Rich Technology Stack

- FAST DEPLOYMENT
  Easiness to Customize, Deploy & Operate
  Web interfaces - Deployments without downtime
  Reduce / maintain legacy manufacturing elements, connecting them to cmManufaturing's Next Generation environment

- SCALABLE, ROBUST AND EASY TO MANAGE
  Real-time system health monitoring and diagnosis
  Continuity for mission critical operations
  Scales together with your business
  Leverage your HW investment
  Simple administration

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PERSISTENCY AND REPORTING LAYER
From Information to Business Intelligence

NEXT GENERATION BUSINESS INTELLIGENCE
- Communication
- Presentation Workflows
- Service Interface
- Operational Management
- Business Workflows
- Security
- Business Objects

Data Access Layer

Online Database(s)

- Operational Data Store (ODS)
- Data Warehouse
- OLAP Business Intelligence

ONLINE DATABASE
Optimized performance for online data queries and transactions

REPORTING
Operation Data Store for standard and user-defined reports without production impact
Standard and user-defined automated reports

BUSINESS INTELLIGENCE
Datawarehouse and OLAP
Data structures for fast data analysis
Multi-dimensional analysis
Key Performance Indicators
NEXT GENERATION PRESENTATION LAYER
From graphical interfaces to User eXperience

Presentation Add-ins
Presentation Framework
Presentation Objects
Windows Communication Foundation

Cross-browser, cross-platform implementation of .NET for building and delivering the next generation of media experiences & rich interactive applications for the Web.

RICH WEB INTERFACE
Web interface = manufacturing anywhere
Allowing fast deployment
Rich Internet Application for enhanced User eXperience

NEXT GENERATION PRESENTATION LAYER
Rich interactive User experience framework
Use our Next Generation manufacturing built applications, or create your own based on our framework

PRESENTATION LAYER WORKFLOWS
Model user interaction processes
Enhanced user experience
Additional flexibility / customization layer

About Critical Manufacturing

Critical Manufacturing creates leading edge software solutions for the high-tech manufacturing markets of semiconductor, solar and electronics.

The company is part of Critical Group, a private group of companies founded in 1998 to provide solutions for mission and business critical information systems. Annual growth has been sustained at 50% per year on average since its foundation, operating a CMMI Level 3 and ISO9001 Quality System.

Critical Manufacturing is based on an experienced services team coming from Critical Group, and established a product team of individuals with more than 10 years experience in high-tech manufacturing.

The company comprises over 80 people, with its headquarters and main technical centre in Portugal and additional facilities in Germany and China.