Microsoft Solutions Framework and the Microsoft Operations Framework

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Goals and Desired Outcomes

- This session will teach the attendee the basic concepts behind the Microsoft Solutions Framework (MSF) and the Microsoft Operations Framework (MOF).
- This session will teach the user about some of the artifacts associated with the integrated process guidance, MSF, in Visual Studio Team System 2005.
- The attendee will leave the session with a set of website links and resources on CD and DVD to continue exploring MSF, MOF, and the Visual Studio Team System 2005.
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An Introduction
Complexity

Driving Business Value
- Automate business processes
- Cut time to market
- Customer and supplier self service
- Improve ROI of IT
- Lower operating costs
- Value chains with partners

Technology
- Service oriented architecture
- Web Services, messaging, contracts
- Security
- Caching and state management
- Deployment policies & constraints
- Heterogeneous platforms

Managing the Process
- Predictable, successful results
- Quality & Uptime
- Performance
- Distributed teams
- Organization and role boundaries
- Process guidance and policies
IT Solution Lifecycle

Value through “Better Together” integration across the Solution Lifecycle

**IT Governance**
- Business process re-engineering
- Demand generation
- Business Value Capture
- Outsourcing
- Resource planning

**The Development Engine**
- Test
- PM
- Arch
- Dev

**Operational Excellence**
- Deployment
- Impact analysis
- Updates and Maintenance
- App Health Monitoring
- App & Network Security
- Automated failover and recovery plans
- Workflow customization
The Problem with Process

Productive

Predictable
Repeatable

Challenges
• Getting people to know about it
• Getting people to use it

• Complex
• Disconnected
• Hardened
Adaptive Organizations

1. IEEE 12207
Digital Relationships And The Agile Business

Steve Ballmer
CEO
Microsoft Corporation
Digital Relationships

Customers
Moving from acquaintance to trusted relationship

Partners
Moving from functional relationships to strategic

Employees
Moving from knowledge workers to decision makers
Business Potential – *The Agile Business*

- Get connected
  - Customers, partners, employees

- Build for change
  - Create flexibility to adapt, evolve in future
  - Streamline business processes

- Capture business value at all levels
  - Bottom line: do more, do it faster, do it with less
  - Top line: new value from new and existing assets

*Agility is an ROI Equation*
Computing Business Agility

Ability to drive better quality decisions

Ability to change and adapt

Ability to maximize relationships: Customers, partners, employees

Agility = Productivity x Flexibility x Connections^3

Total Cost

Ability to reliably and cost effectively create, adapt, maintain

Return on the dynamic of business
Business Imperatives

Return on People
- Unlock data for better decisions
- Drive productivity - anytime, anywhere, any device
- Build on existing skills, familiarity

Return on Process
- Intrinsic integration, open standards
- Faster time & lower cost to benefit
- Brokered web services
- Reinvigorate existing systems, processes

Return on Relationships
- Deeper engagement
- Visibility for innovation at all levels of org
- Flexibility to act on opportunity
- Respond quickly & well
- New revenue, venues

Return on IT Infrastructure
- Flexible interoperability
- Lower total cost of ownership
- Embrace, maximize mobility
- Support heterogeneous environ
- Market leading manageability, performance, integrity
Connections³

Employees Connected to Customer

Adventure Works

Better Product; Faster Delivery

XML Web Services

Agile Business Process

Integrated Partners

Adventure Works

Better Product; Faster Delivery

XML Web Services

Agile Business Process

Integrated Partners
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Microsoft Solutions Framework Version 3
Today’s Business Environment

- Places increasing demands on IT organizations
  - Rapid change
  - Financial constraints
  - Global interconnectivity
  - Expanding needs
  - Greater variety of stakeholders

- MSF 3 is:
  - An adaptable approach
  - For successfully delivering technology solutions faster
  - With fewer people
  - With less risk
  - While producing higher quality results
MSF 3

**MSF is:**
- A deliberate and disciplined approach to technology projects

**Based on:**
- Microsoft internal practices
- Experiences of Microsoft Services working with customers and partners
- Industry best practices

**Objectives**
- Address the most common causes of technology project failure
- Improve success rates
- Improve solution quality
- Improve the business impact

**MSF Describes**
- How to align business and technology goals
- How to establish clear project goals, roles, and responsibilities
- How to implement an iterative, milestone-driven process
- How to manage risk proactively
- How to respond to change effectively

**5 Primary Topic Areas**
- Team Model
- Process Model
- Project Management Discipline
- Risk Management
- Readiness Management Discipline
Microsoft Solutions Framework and Trustworthy Computing

- Disciplined approach to creating products based on Microsoft technologies involving:
  - Defined set of principles
  - Models
  - Guidelines
  - Proven best practices
- MSF is a Framework
  - Flexible and scalable – not a prescriptive methodology or process
  - Provides guidance
  - Oriented to the IT domain
- MSF Foundation
  - Open communication
  - Concise, shared vision
  - Empower team members
  - Clear accountability, shared responsibility
  - Focus on delivering business value
  - Stay agile, expect change

Legend: ~ "relates to"
MSF (continued)

**MSF Process Model**
- Flexible, based on phases and milestones
  - Phases – periods of time in which certain activities produce deliverables
  - Milestones – review and synchronization points
- Allows response to customer requests and changes to a product in midcourse
- Allows delivery of key portions of a product faster, moving less critical functions to later releases
MSF Team Model

- Program Management – deliver within project constraints
- Development – deliver to product specifications
- Test – Release after addressing all issues
- Release Management – Smooth deployment and Ongoing Management
- User Experience – Enhance user performance
- Product Management – See to customer satisfaction
MSF Disciplines

- Project Management - Aligned with the major project management bodies of knowledge with the domain of technology-oriented projects
  - Project Management Institute
  - International Project Management Association
  - Prince2 (Projects in Controlled Environments)
- Risk Management – 6-step risk management process integrated into both the Team and Process Models
- Readiness Management – Measures the current versus the desired state of knowledge, skills, and abilities of the people in an organization

MSF integrates with Microsoft’s Trustworthy Computing Initiative

- A collaboration between Microsoft, its customers, its business partners, its suppliers, and government agencies, such as the NSA
- Includes, but is not limited to:
  - A proactive security-oriented development process
  - Several best practices in writing secure code
  - Threat modeling
  - Testing with security in mind
  - Reviewing code with security in mind
  - Addressing privacy concerns in coding
Trustworthy Computing

- Resilient to attack
- Protects confidentiality, integrity, and availability of data and system
- Individuals control personal data
- Products and online services adhere to fair information principles
- Dependable
- Available when needed and performs at expected levels
- Responsive and responsible handling of customer product and service issues
Discussing MSF
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Microsoft Operations Framework Version 3
What is the MOF?

- The Microsoft Operations Framework (MOF) defines ...
  - Proven team structures
  - Operational processes
  - Best IT practices
- Goals are to Improve ...
  - Efficiency of IT organizations
  - Quality of IT operations
- Core Components
  - Team Model
  - Process Model
  - Risk Management Discipline
The MSF and the MOF
MOF Core Guidance

Solution accelerators apply Microsoft technology and automation, in addition to guidance from one or more SMFs to achieve a particular IT objective.

Service improvement projects provide prescriptive guidance for implementing a particular SMF into an organization.

MOF Disciplines

MOF Team Model

MOF Process Model

Solution Accelerator

Service Improvement Project

Service Management Functions
Some Available Solution Accelerators

- Business Desktop Deployment
- Enterprise Messaging
- Internet Data Center
- Service Monitoring and Control
- Domain Server Consolidation and Migration
- Patch Management (several versions)
- Windows Server Deployment
MOF and ITIL

- MOF aligns and builds on the IT service management practices documented in the IT Infrastructure Library (ITIL) maintained by the United Kingdom’s Office of Government Commerce (OGC)
  - OGC is a U.K. government executive agency
  - Charter: develop best-practice advice and guidance on the use of IT in service management and operations
  - Microsoft has been involved in the ITIL community since 1999
MOF and ITIL (concluded)
MOF Models – Team Model with Role Clusters

- Change Management
- Release Engineering
- Configuration control / asset management
- Software distribution / licensing
- Quality assurance

- Intellectually property protection
- Network and system security
- Intrusion detection
- Virus protection
- Audit and compliance administration
- Contingency planning

- SLA drafting/negotiation
- Service catalog management
- SLA review
- Service improvement initiation
- Customer relationship management
- Service level management

- Managed service outsourcers
- Software / hardware suppliers
- Maintenance vendors
- Environment support
- Training partners

- Enterprise architecture
- Infrastructure / systems engineering
- Capacity management
- Cost / IT budget management
- Resource and long-range planning

- Messaging operations
- Database operations
- Network administration
- Monitoring / metrics
- Availability management

- Service desk / help desk
- Production / production support
- Problem management
- Service level management
MOF Process Model
MOF Process Model with Service Management Functions (SMFs)
Aligning Team Model Role Clusters with the Process Model
Risk Management Process

1. Identify
2. Analyze and Prioritize
3. Plan and Schedule
4. Track and Report
5. Control
6. Learn

Risk Statement

Risk Knowledge Base, Concepts, and Processes
Discussing MOF
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Microsoft Solutions
Framework Version 4.0
Microsoft Solutions Framework

MSF offers guidance in how to organize people and projects to plan, build, and deploy technology solutions successfully and effectively.
MSF (v4) is...

The right content for the right person at the right time

1. An agile software development process
2. A formal software development process
3. Framework for customers and partners to implement custom software development process
MSF Delivered

- Accessible/Embedded
  - Exposed within Help
- Centralized
  - Delivered via Team Foundation Server
- Current
  - Updated from MSDN
- Customizable
  - Extended by Customers and Partners
Plan a Scenario

Implement a Development Task

Create Solution Architecture

Create a Scenario

Create Scenario List

Prioritize Scenario List

Write Scenarios

Review Scenarios

Define Personas

Storyboard a Scenario

Estimate Scenario

Schedule Scenario

Divide Scenario into Tasks

Decompose System

Determine Interfaces

Create Architectural Prototype

Cost a Development Task

From Team Collaboration to Team Partnership

Run a Test Case

Write Code

Class

Class2

Class3

Write and Perform Unit Tests

Review Code

Write Validation Tests

Integrate

Run Test

Identify a Bug
Key goals for MSF:

- Drive business success through business & technology alignment
- Ensure high quality solutions; handling the many facets of quality as defined by multiple stakeholders
- Accelerate delivery, reduce costs, minimize risks
- Improve team effectiveness
Methods of Adoption

- Organizational/Team – The team has decided as a unit to adopt some flavor of MSF (or your process)
- Grassroots – Individuals on the team find the practices useful and the process spreads by providing value

MSF provides friction-free usage that doesn’t get in the way
Methods of Extension

- **Framework** – Build a process within the MSF meta-model, adopting pieces or all of MSF Agile or Formal

- **Prototype** – Using pieces or all of MSF Agile or Formal as a base to build your own process without the meta-model
MSF Process Model Structure

MSF Metamodel Essentials

Process work consisting of activities that should be enacted together are defined as selectable process modules.

Role clusters define groups of roles related by skill or discipline.

A work product is an associated with one or more roles which have different responsibilities regarding work performed on or using it.

An activity defines work in terms of steps performed by a role on, or using, a work product.

A work product is an output of or input to an activity.

Specific process modules are appropriate for selection in one or more phases.

One or more iterations of process module enactment occur during each phase.

A project is in a phase determined by the aggregate state of key work products.

An iteration consists of activities enacted as an assignment to a person.
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A Comparison to Other Approaches
2 Main Models
- Software Capability Maturity Model (CMM)
- Capability Maturity Model Integration (CMMI) effort for:
  - Systems Engineering
  - Software Engineering
  - Integrated Product Development
  - Supplier Sourcing

Models are collections of best practices – may be used to perform audits

Domain – measured projects with teams of 50 or more

CMM Key Process Areas
- Repeatable (Level 2)
  - Requirements Management
  - Software Project Planning
  - Software Project Tracking and Oversight
  - Software Subcontract Management
  - Software Quality Assurance
  - Software Configuration Management

CMM Key Process Areas
- Defined (Level 3)
  - Organization Process Focus
  - Organization Process Definition
  - Training Program
  - Integrated Software Management
  - Software Product Engineering
  - Inter-group Coordination
  - Peer Reviews

- Managed (Level 4)
  - Quantitative Process Management
  - Software Quality Management

- Optimizing (Level 5)
  - Defect Prevention
  - Technology Change Management
  - Process Change Management
Systems and Software Engineering (concluded)

CMMI Key Process Areas

Process Management
- Organizational Process Definition (Level 3)
- Organizational Process Focus (Level 3)
- Organizational Training (Level 3)
- Organizational Process Performance (Level 4)
- Organizational Innovation and Deployment (Level 5)

Project Management
- Project Planning (Level 2)
- Project Monitoring and Control (Level 2)
- Supplier Agreement Management (Level 2)
- Integrated Project Management (Level 3)
- Risk Management (Level 3)
- Integrated Teaming (Level 3)
- Quantitative Project Management (Level 4)

CMMI Key Process Areas

Engineering
- Requirements Management (Level 2)
- Requirements Development (Level 3)
- Technical Solution (Level 3)
- Product Integration (Level 3)
- Verification (Level 3)
- Validation (Level 3)

Support
- Configuration Management (Level 2)
- Process and Product Quality Management (Level 2)
- Measurement and Analysis (Level 2)
- Decision Analysis and Resolution (Level 3)
- Organizational Environment for Integration (Level 3)
- Causal Analysis and Resolution (Level 5)
Capability Maturity

Initial Level

Repeatabile Level

Defined Level

Managed Level

Optimizing Level

Probability

Target

Time/$/...

Probability

Target

Time/$/...

Probability

Target

Time/$/...

Probability

Target

Time/$/...
MSF and the CMM/CMMI

- **MSF Process Model**
  - Provides guidance and proven practices for process improvement
  - Has an IT focus

- **MSF itself it not process-centric**
  - Non-process elements: envisioning, teaming, leadership
  - Does not address organizational improvement or establishing organizational processes

- **MSF and CMM/CMMI share same goals:**
  - Continual improvement
  - Refine best practices – set of best practices in MSF not exactly the same as CMM/CMMI, but there are overlaps

- **Differences between MSF and CMM/CMMI**
  - CMM/CMMI uses a prescribed appraisal method to compare current processes to benchmarked models while
  - MSF does not attempt to measure or assess either the capability or maturity of an organization’s processes
Extreme Programming

- Simple, specific, easy-to-follow methodology for software development
  - Non-safety-critical software
  - Small teams of people

- Basic cycle at the core of XP
  - Customer defines value (what the product is to do)
  - Programmer estimates the cost of building that value into the product
  - Customer chooses what part of the defined value is going to be built
  - Programmer builds a new version of the product
  - Repeat, learning from the experience

- XP features many common-sense best practices including, but not limited to:
  - Incremental planning
  - Adaptability to changing business needs
  - Flexible scheduling of the implementation of various functionalities
  - Short development cycles with feedback between cycles
  - Reliance on automated tests written by both developers and customers
  - Developers working in pairs, preparing tests first and then writing code
  - Development viewed as an activity that proceeds throughout the lifetime of a system
MSF and Extreme Programming

Very much aligned to both principles and practices for software development in environments that require a high degree of adaptability.

Differ

- MSF covers a broader field.
- Extreme Programming is optimal on projects where there is enough uncertainty that exploration and progressive understanding of requirements favors this highly adaptive approach.
- MSF can include Extreme Programming where appropriate but can also accommodate higher levels of structure for optimizing processes.
- Extreme Programming focuses on the design and development phases.
- MSF adds phases for defining business value at the front and transitioning software from development to operations in the back.
Comparing Best Practices

Trends

- Each approach based on experiences in
  - Different domains
  - Different sizes of teams
  - Different cultures
- Each approach shares many best practices – implementation is different
  - Requirements
  - Testing
  - Measurements
  - Estimating based on historical data and experiences
  - Peer and user reviews
  - Management oversight
  - Coding (as a smaller part of the effort)

Trends

- All approaches are iterative
  - CMM/CMMI is usually implemented by the Spiral or Evolutionary Spiral Model today
  - Waterfalls are in the past unless part of an iterative process
- Some approaches are more rigorous and controlling than others
  - Such approaches usually provide more analytical data that may be applied via techniques like Statistical Process Control
  - Such approaches have a higher overhead cost
  - Such approaches involve larger teams of people
  - Such approaches involve safety-critical software development
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A Conclusion and Resources
Conclusions

- MSF version 4.0 comes in two flavors to deliver maximum flexibility
- MSF is fully integrated in Visual Studio Team System
- MSF updates are delivered via MSDN
- MSF can become a basis for your software development process
Business Value Through Innovation

Integrated Innovation

Microsoft Windows Server System

Operations Infrastructure
- Internet Security and Acceleration Server
- Systems Management Server
- Operations Manager
- Application Center
- Windows Storage Server

Application Infrastructure
- SQL Server
- BizTalk Server
- Commerce Server
- Host Integration Server
- Speech Server

Information Work Infrastructure
- Exchange Server
- Office Live Communications
- Office SharePoint Portal Server
- Content Management Server
- Office Project Server

Kerberos, Certificate Services
- VPN, RAS, DNS, DHCP
- WMI, Group Policy

Active Directory
- Identity Integration Server
- UDDI
- .NET Framework

File and Print
- SharePoint Services
- Rights Management Services
- Terminal Services
- Media Services
Community Resources

MSF and MOF
http://www.microsoft.com/msf
http://www.microsoft.com/mof

Attend a free chat or web cast
http://www.microsoft.com/communities/chats/default.mspx
http://www.microsoft.com/usa/webcasts/default.asp

List of newsgroups

MS Community Sites
http://www.microsoft.com/communities/default.mspx

Locate Local User Groups
http://www.microsoft.com/communities/usergroups/default.mspx
Contacting Me

http://unicoi.kennesaw.edu/~rconn/ade/index.htm
Session Evaluation

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Q2: Usefulness of the information
Q3: Presenter’s knowledge of the subject
Q4: Presenter’s presentation skills
Q5: Effectiveness of the presentation