Operational Resiliency Management

An Introduction to the Resiliency Engineering Framework

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### Operational Resiliency Management: An Introduction to the Resiliency Engineering Framework

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Agenda

Who are we?

Introduction to Operational Resiliency and the Resiliency Model

Characterizing the Problem Space

Introducing the Resiliency Engineering Framework

Summary

Questions
Financial Services Technology Consortium

Established in 1993

Member-owned consortium for collaboration between financial services-focused organization

Explore new technologies and methodologies to address today’s business requirements

Projects:

- Technology Review
- Compliance
- Business Continuity Maturity Model
Software Engineering Institute

Established in 1984
Federally Funded Research and Development Center (FFRDC)
College-level unit of Carnegie Mellon University
Includes five technical programs aimed helping defense, government, industry, and academic organizations to continually improve software-intensive systems

Widely-known “brands”

- CERT Coordination Center
- Capability Maturity Model Integration (CMMI)
Managing Today’s Operational Risk Challenges

Resiliency Engineering
An Emerging Management Discipline

Disasters
Cyber Security
Terrorism

Regulations
Supply Chain
Infrastructure

Federal Financial Institutions Examination Council
CERT
Software Engineering Institute
Carnegie Mellon

FRB Bus Con Conference 2006
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Resiliency…more than a buzzword

Resiliency is the ability of an object to return to its original shape

Operational resiliency refers to an organization’s ability to function and adapt through the lifecycle of disruptions

A resiliency model is a roadmap for managing the consistent delivery of products and services
Managing resiliency

Requires

• Ongoing measurement and monitoring
• Balancing cost and risk tradeoffs
• Taking an enterprise focus

Financial Services organizations recognize a need to be able to manage resiliency in a systematic, consistent, measurable, and improvable way.
A model is needed to...

- Identify and prioritize risk exposures
- Define a process improvement roadmap
- Measure and facilitate strategic planning
- Address interdependencies
- Promote pro-active regulatory compliance
Goal: continuous improvement of resiliency processes
Why use a “model” approach?

- Provides an operational risk roadmap
- Vendor-neutral, standardized, unbiased assessment vehicle
- Can be leveraged for process improvement at any organization, public or private
- Avoids the pitfalls of prescriptive solutions by promoting resiliency engineering and the use of organization-appropriate practices
Teaming with the SEI

Fieldwork history with OCTAVESM
Best-in-Class IT Operations Roundtable
Enterprise Security Management and PrISM
Resiliency Maturity Model
Resiliency Engineering Framework
Defining the problem

Typical organizational approach to operational risk management activities:

- Poorly planned and executed function
- Business units not involved
- No asset management function
- Seen as a technical function or responsibility
- Searching for magic bullet: CobiT, ITIL, ISO17799, NFP1600
- Poorly defined and measured goals
- Funding model reactive, not strategic
Organizational impact

- Misalignment of operational, security, and continuity goals
- False sense of accomplishment
- Failure to recognize/utilize all skills/resources
- Compliance at the expense of effectiveness
- Static, inflexible approach that can’t evolve
The changing view of security

Security is an operational risk management activity

Security has two purposes:

• Prevent disruption to core business drivers
• Sustain the survivability of the organization’s mission

Security is not an end, but a means to achieving higher organizational goals
Operational risk and resiliency

Operational risk is the risk that results from

- Failed internal processes
- Inadvertent or deliberate actions of people
- Problems with systems and technology
- External events

Operational resiliency is the organization’s ability to sustain the mission in the face of these risks
Managing operational resiliency

Requires more than traditional security activities

Continuity of operations (COOP) planning is essential

Derives benefits from process excellence in areas such as IT operations and service delivery management
Security and operational resiliency

Focus on keeping critical assets safe from harm
Limiting threats and managing impacts
Manage confidentiality, integrity, and availability
Manage “condition”
Business continuity and operational resiliency

Limit unwanted effects of realized risk

Ensure availability and recoverability

Manage “consequence”
IT Operations Management and operational resiliency

Limit vulnerabilities and threats that originate in the technical infrastructure

Ensure availability and recoverability of technology
Collaborating toward a common goal
Operational resiliency in practice

People → Business Processes relies upon the actions of

Technology → Business Processes is supported by

Information → Business Processes requires and creates

Facilities → Business Processes is performed in
An emerging holistic view

Organization is dependent on the productivity of four assets:

- People
- Information
- Technology
- Facilities

Each asset must be protected and sustainable
Collaborating toward a common goal
Focusing on the mission
How do we get there?

Organizations are not structured today to facilitate collaboration toward a common goal of resiliency

• Deficient funding models
• Management direction and oversight lacking
• Practice-driven
• Compliance-focused

Need to view resiliency as a definable, manageable, enterprise-wide process
Considering a process approach

Elevating the management and coordination of operational-resiliency focused activities to the enterprise level

- Shared goals and resources
- Elimination of redundancy and stovepipes
- Elimination of framework quagmire through practice integration
- Measuring process effectiveness
- Moving toward process improvement
How does process differ from practice?

<table>
<thead>
<tr>
<th>Process</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <em>Describes</em> the “what”</td>
<td>- <em>Prescribes</em> the “how”</td>
</tr>
<tr>
<td>- Set and achieve process goals</td>
<td>- No practice goals</td>
</tr>
<tr>
<td>- Manage process to requirements</td>
<td>- Tends toward “set and forget” mentality</td>
</tr>
<tr>
<td>- Select practices based on process goals</td>
<td>- Reinforces domain-driven approach</td>
</tr>
<tr>
<td>- Can be defined, communicated, measured, and controlled</td>
<td>- One size does not fit all</td>
</tr>
<tr>
<td></td>
<td>- Regulatory vehicle</td>
</tr>
</tbody>
</table>
The relationship between process and practice
Embracing process improvement

Improvement in meeting resiliency goals is dependent on the active management of the process

Process maturity increases capability for meeting goals and sustaining the process

“Are we resilient?” or “Are we secure?” is answered in the context of goal achievement rather than what hasn’t happened

Meaningful, purposeful selection and implementation of practices
Resiliency engineering defined

The process by which an organization establishes, develops, implements, and manages the operational resiliency of services, related business processes, and associated assets

“Requirements-driven security and COOP”
Introducing the Resiliency Engineering Framework
The Resiliency Engineering Framework

A process improvement framework for security and continuity of operations

Defines basic process areas and provides guidelines for improving security and COOP processes

Addresses operational risk management through process management

Vital linkages between security, COOP, and I/T ops are captured in the process definition

Establishes a capability benchmark
Framework architecture

Represents processes that span four basic areas:

• Enterprise management
• Engineering
• Operations management
• Process management

Considers the resiliency of people, information, technology, and facilities in the context of services and business objectives
Enterprise management processes

Enterprise capabilities that are essential to supporting the resiliency engineering process

RSKM – Risk Management
EF – Enterprise Focus
COMP – Compliance Management
FRM – Financial Resource Management
HRM – Human Resource Management
Operations management processes

Capabilities focused on sustaining an adequate level of operational resiliency

SAM – Supplier Agreement Management
SRM – Supplier Relationship Management
AMC – Access Management and Control
IMC – Incident Management and Control
VM – Vulnerability Management
EC – Environmental Control
KIM – Knowledge and Information Management
SOM – Security Operations Management
ITOPS – IT Operations Management
### Engineering processes

*Capabilities focused on establishing and implementing resiliency for organizational assets, business processes, and services*

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>RD</td>
<td>Requirements Definition</td>
</tr>
<tr>
<td>RM</td>
<td>Requirements Management</td>
</tr>
<tr>
<td>AM</td>
<td>Asset Management</td>
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<tr>
<td>COOP</td>
<td>Continuity of Operations Planning</td>
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<td>REST</td>
<td>Restoration of Operations Planning</td>
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<tr>
<td>CSI</td>
<td>Control Selection and Implementation</td>
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<tr>
<td>RAD</td>
<td>Resilient Architecture Development</td>
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</tbody>
</table>
Process management processes

Enterprise capabilities related to defining, planning, deploying, implementing, monitoring, controlling, appraising, measuring, and improving processes

OT – Organizational Training
OPF – Organizational Process Focus
OPD – Organizational Process Definition
MA – Measurement and Analysis
MON - Monitoring
Using the framework

Establish current level of capability
Set forward-looking resiliency goals and targets
Develop plans to close identified gaps
Build resiliency into important assets and architectures
Reduce reactionary activities; shift to directing and controlling activities
Align common practices with processes to achieve process goals
Where do we go from here?

Release REF v1.0 in October 2006 for comments

Guidelines for improving the security and business continuity processes

Phase III expansion of model development and piloting

Exploration of integration with other existing models

Development of appraisal methodology to measure capability for managing resiliency
## Phase I and Phase II Project Members

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<thead>
<tr>
<th>Ameriprise</th>
<th>Key Bank</th>
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<tr>
<td>Bank of America</td>
<td>KPMG</td>
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<td>Carnegie Mellon</td>
<td>MasterCard</td>
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<td>Capital Group</td>
<td>Marshall and IIsley</td>
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<td>Citicorp</td>
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<td>JPMorgan Chase</td>
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Summary and questions

Operational resiliency must be actively managed
Security, BC/DR, and ITOps must collaborate
Model-based process improvement brings defined, systematic, repeatable, consistent, and improvable processes
Approach must be flexible and adaptable
No one-size-fits-all solution
For more information

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