Business Driven Automation: An Introduction to IT Process and Runbook Automation

AJ Dennis
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IT Is Complex | Management Software Has Not Kept Pace

ITIL

Virtualization

COBIT

BASEL II

Application Integration

Services

Business Intelligence/Analytical Applications

Collaboration

Application Development Tools

Database

Network & Systems Management

Security

Management Vendors

Storage

Content Filtering

Support

Provisioning

Grid

J/SOX

Virtualization

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BASEL II

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Today’s Challenge

- IPM (Service Desk)
- SLM (Service Catalog)
- APM (CEM)
- APM (Introscope)
- SAP
- DM (Modeling, Perf., Admin, Backup)
- DVSM (Automation Point)
- DVSM (NetMaster)
- DVSM (OPS/MVS)
- DVSM (SysView)
- DVSM (MIM)
- SIM (Security Command Center)
- TM (Threat Manager)
- IAM (Identity Manager)
- IAM (TopSecret)
- IAM (Cleanup)
- IAM (SiteMinder)
- SAP, PeopleSoft, Oracle ERP Apps
- Cisco CIC
- CMDB
- ITAFM (Asset Intelligence)
- SAM (NSM)
- NVM (SPECTRUM)
- NVM (NSM)
- NVM (eHealth)
- DVSM (Desktop DNA)
- CCM (SupportBridge)
- CCM (Harvest)
- CCM (CMS – Asset Mgt, Remote Control, Software Delivery)

Legend:
- Green: Workflow Integration
- Blue: Navigation Integration
- Red: Alarm/Event Integration
- Light Blue: Data Integration
- Orange: Incident Integration

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“Informed Automation”

Unique linking of performance metrics and configuration information with rules-based policy engine

Dynamically react to production environment changes to execute jobs on best available resources

Result: Improved applications performance and availability, and more efficient resource usage
Capabilities of Business-Driven Automation

Create process flows with remediation and recovery capabilities that cross domain silos and integrate with multiple technology providers.

Automate tasks with repeatable, extensible processes across virtual and physical infrastructure.

"IT Process Automation frees up 77% more staff for strategic projects." – EMA²

Visual design and development environment supported by enterprise grade orchestration engine.
Integrating the core elements of business & IT

Integrating • People • Process • Technology

into...

Repeatable and extensible automation
Integrates you existing IT infrastructure and aligns your top IT initiatives

- Run Book Automation
- ITIL compliance
- Provisioning
- Disaster Recovery
- Virtual Infrastructure Management
- Security
- Application Monitor & Restart
> Typical solutions have implemented a minimal set of features required to meet the definition of IT Process Automation.

- **DEFINE** – core set of objects that represent logical operations, common server and network functions, and integrations to system management tools that can be combined into a process definition.

- **BUILD** – visual authoring environment that provides a drag-and-drop interface for building process definitions with the core objects.

- **ORCHESTRATION** – automation engine that executes the various operations in the process definition, often in coordination with deployed agents.

- **MANAGE** – Some form of a management console that provides command and control functionality

- **REPORT** – Reporting mechanism used for analysis and planning efforts regarding operational and production processes.
What is IT Process Automation

IT Process Automation - Design, develop and deploy automation of their manual, resource-intensive and often inconsistent operational procedures

> Fundamental Characteristics

- Focused on the delivery of IT services
  - maximizing IT operational efficiencies across IT departments and IT tool sets throughout the enterprise.
- Coordinating the cross-domain “heavy lifting”
  - enabling not only process automation but also process audit trails for review / continuous improvement

> The result is an IT environment with

- Reduced operational expenses
- Increased staff productivity
- More consistent, error-free and auditable operations
- Auditable alignment with compliance requirements
## Sample IT Process Automation Benefits

<table>
<thead>
<tr>
<th>Industry</th>
<th>Process</th>
<th>Annual Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banking</td>
<td>Disaster Recovery &amp; Application Failover</td>
<td>$300K + regulatory penalties</td>
</tr>
<tr>
<td>Telecommunication Services Provider</td>
<td>CRM/Billing Locked Accounts</td>
<td>$3M + 16k/month ticket reduction</td>
</tr>
<tr>
<td>Insurance</td>
<td>Application Checklist &amp; Monitor/Restart</td>
<td>$300K</td>
</tr>
<tr>
<td>Telecommunication Services Provider</td>
<td>IP Scope Management</td>
<td>$2M+ revenue</td>
</tr>
<tr>
<td>Financial Services</td>
<td>Problem Management &amp; Alert Floods</td>
<td>$400K</td>
</tr>
<tr>
<td>Telecommunication Services Provider</td>
<td>Provisioning System Production Support</td>
<td>$1M + revenue</td>
</tr>
</tbody>
</table>
A Service Provider Case Study

DELIVERING RESULTS

- Over $3M in annual operational savings
- Reduction of over 16K trouble tickets per month
- 6 Production staff and 12 help desk staff were freed to focus on higher-value issues

CHALLENGE

- End-users were being locked out of their accounts after 15 minutes of inactivity and many manual checks had to be run before a user could be allowed back in
- The organization had over 16K trouble tickets a month resulting from this issue

SOLUTION

- Using process automation, the company automatically detects locked accounts, goes through the data integrity tests, then automatically unlocks accounts in the 95% case
Features key to Mission Critical Deployment

- Security
- Scalability
- High Availability

Expanding Limited Process Coverage & Visibility

- Real-time visibility into running processes.
- Lacks the ability to automate end-to-end processes that require human interaction.
- Inability to gracefully handle the unknown and exceptional cases.

Opening Restricted Environmental Scope

- OOTB integrations do not address existing proprietary tools, applications in your environment or map to your business
- Dynamic nature of today’s IT environment means there will be a continuing need for new integration support
“Enterprise Class” IT Process Automation

> Enterprise Class Architecture

- Built upon a framework that delivers reliability and high availability at both the system and process level.
- Scalability that enables you to automate against a single application or a global set of data centers.
- A Security model that allows for authentication via existing identity management systems and provides fine-grain profile based authorization (ACLs).

> True End-to-End Process Automation

- Modular design constructs and support for on-demand human interaction are required to represent today’s complex IT processes.
- Not all possible outcomes will be known at design-time so must be able to gracefully handle and then incorporate unknown conditions and exceptions.

> Extensible Integration Suite

- OOTB connectors for rapid integration with common IT tools and applications.
- Mechanism to develop your own connectors to support integration with existing proprietary tools along with new technologies that will incorporated into your environment in the future.
Benefits “Enterprise Class” Process Automation

> Maximizes benefits of IT Process Automation
  - Drastically reduced operational expenses
  - Increased productivity and consistency
  - Alignment with compliance requirements

> Over time IT Process Automation becomes a transformational technology within your enterprise
  - Free up resources to work on new business initiatives
  - Enables a pre-emptive mode of IT management

> Enables you to deliver on the Business and IT goals
  - Integration of process, people, and technology
  - Automated self-managed IT operational processes and procedures.
  - Accelerated IT Service Delivery
CA’s Approach to IT Process Automation

- Our goal is to **systematize** and **automate** your IT organization’s expertise and activities by integrating the broad elements (people, process, technology) of your IT operations.

- These are the tools that deliver on that goal:
  - Process Designer – enabling rapid development of high value business and IT automation
  - Automation Orchestrator – orchestrating processes in complex, heterogeneous environments
  - Lifecycle Manager – providing management of processes, segregation of roles, audit trails, alignment with compliance needs
  - Automation Library - providing the persistence of processes, roles, audit trails, compliance metrics, etc
CA’s Approach to IT Process Automation

Architecture & Functional Elements

- Automation Library
- Process Designer
- Lifecycle Manager
- Automation Orchestrator

- Mgmt. application trigger or process agent touchpoint

Managed Resources:
- Applications
- Virtual Servers
- Physical Servers/Blades
- Databases
- Network Devices
- Disk/San

SHIFT YOUR AUTOMATION INTO HIGH GEAR

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## Sample of Connectors Available

<table>
<thead>
<tr>
<th>Service Desk</th>
<th>Network Management</th>
<th>System Management</th>
<th>Operating Systems</th>
<th>Workload Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA Service Desk</td>
<td>CA Spectrum IM</td>
<td>Microsoft Operations Manager (MS MOM)</td>
<td>Microsoft Windows</td>
<td>CA Autosys</td>
</tr>
<tr>
<td>HP Service Center</td>
<td>Ciscoworks</td>
<td>Tivoli Enterprise Console</td>
<td>Unix</td>
<td>CA D-Series</td>
</tr>
<tr>
<td>BMC Remedy</td>
<td>HP OpenView CA NSM</td>
<td>HP OpenView</td>
<td>Linux</td>
<td>BMC Control-M</td>
</tr>
<tr>
<td></td>
<td>IBM Netcool</td>
<td>CA Spectrum Automation Manager</td>
<td>VMware VirtualCenter</td>
<td></td>
</tr>
</tbody>
</table>
An application server goes down...

- ...event monitor generates an alert
  - technician runs diagnostics to find root cause
- ...a new virtual machine is required,
  - a service desk ticket is created and assigned
  - asset management dept. must approve / edit the config.
  - tech builds the virtual machine and decommissions the old one
- The new virtual server must be added to the software/patch deployment list to ensure compliance before the server could be deployed and the ticket, finally, closed.
- SLA violation detected for mission critical application
- Supporting server is out of compliance
- Interface is down on server
1. Service Desk incident ticket created for SLA Breach
2. Automated remediation identified. Approval needed to initiate.
3. Service Desk incident ticket has been enriched with information regarding automated process.

4. Check with CA OP-EN to see if we can provision another server in the Data Center.

5. Operational temperature is too high to provision another physical server in the Data Center.
6. Unable to provision in Data Center because of environmental conditions so request permission to provision to cloud.

7. Permission granted so create change request to provision in cloud.

8. Launch Spectrum Automation Manager job to perform provisioning operation.

9. Spectrum Automation Manager begins provisioning operation…
10. Provisioning complete. Need to verify SLA.
11. Spectrum Automation Manager shows SLA back within range.
12. Remediation process is now complete.
13. New Server is now online.
14. Application is back within SLA requirements.
The Value of IT Process Automation

- IT Process Automation is transformative in the way you manage your:
  - **People** - Substantially increase productivity of key staff and enhance operational consistency
  - **Process** – Aligned with the business and more transparent in ensuring compliance requirements
  - **Technology** – A more integrated and coordinated IT environment dramatically reduces operational expenses and allows more high-value enhancements
> INTEGRATE

- Provide an extensible means to integrate the core elements of your IT environment: people, process, and technology.

> INTELLIGENTLY AUTOMATE

- Allow you to capture and coordinate your organization’s experience and activities in a comprehensive or end-to-end fashion.

> ACCELERATE

- Enable accelerated IT Service Delivery throughout the enterprise by delivering a platform that:
  - scales with your organization’s process needs and maturity
  - Makes IT more flexible and engaged with the business