White Paper
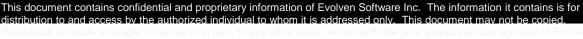
Evolven and You

Evolven IT Operations Analytics (ITOA) has raised great promise for helping IT operations. On the practical side, ITOA technology also raises questions around how does Evolven IT Operations Analytics fits into your organization's process, maturity and infrastructure.

This White Paper explores how the Evolven IT Operations Analytics solution fits into the common IT landscape infrastructure, and implementation, and addresses the pressing questions of:

- How do you realize value with Evolven as quickly as possible?

- How do you integrate Evolven into your existing technology and processes?

EVOLVEN

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1. How Evolven Fits into the Common IT Landscape?

Where and how does Evolven connect with other tools? How is Evolven different from other tools?

Evolven IT Operations Analytics focuses on collection and processing of configuration and change data to produce operation insights. In light of this, Evolven is sometimes compared to such products as CMDB, Compliance tools or Service Desk. While Evolven does enhance change and configuration management processes, Evolven's solution is far different than what those technologies do. Within IT management and automation landscape Evolven can provide standalone value and also add synergy working together with other technologies.

1.1 CONFIGURATION MANAGEMENT DATABASE (CMDB)

The purpose of CMDB is to build and manage a map of business services or applications and include all the dependencies. This information gives IT visibility into the actual architecture and content of their data centers. It is used for impact analysis in proactive change planning or reactive incident management. In technical terms it means that the CMDB discovers and stores information on basic and composite configuration items (CIs) and the relations between them. Essentially CMDB provides a view of the entire IT landscape from 30,000 feet.

However, a CMDB does not take the critical next step and collect the detailed configuration of each CI, which is essential for actual change validation, incident investigation and many others day-to-day operations scenarios.

Evolven efficiently collects volumes of configurations for each CI in near real time and down to the granular level, and also provides the necessary analytics to make sense of this overwhelming amounts of information.

So in simple terms, the CMDB can say if a new virtual server was added to the data center or cloud infrastructure, or if a new software component was installed. However Evolven will be able to say if a particular parameter of the application server was changed, if this change was done correctly and if the change presents risk to system stability, performance or security.

1.2 COMPLIANCE TOOLS

There are various tools that can collect granular configuration information. However these tools apply this information only for compliance purposes, validating the collected configuration information against custom and out-of-the box policies or checklists. Deviation from these policies is considered to be

incompliant. While this capability is essential for regulatory management (SOX, PCI and HIPAA etc.), it is less helpful for day-to-day operational management. Let's say that a parameter was changed according to requirements outlined in SOX rules but the result still presents a risk to system performance. The fact that such change is compliant is not sufficient for IT management.

Evolven uses sophisticated analytics to assess the entire collection of configurations, even at the granular detail, and all detected changes, considering them in terms of their operational impact and risk, even if the changes are legitimate and compliant.

1.3 SERVICE DESK

The goal of the Service Desk is to control and automate change workflows from inception through to approval and implementation. The workflows are based on change requests that are manually described. The request includes a limited amount of details, balancing the amount of information necessary to make a decision on change approval against the efforts used to summarize the request.

Evolven continues where Service Desk workflows stop, capturing detailed content of each actual change including specific parameters and resources changes. Evolven IT Operations Analytics verifies that changes were made accurately, and can identify changes that bypassed the Service Desk and its workflows.

Evolven Value
Working together with CMDB, Compliance tools and Service Desk, Evolven closes the loop for such processes as incident management, change management and configuration management. It adds automated operational insights (actual changes, unauthorized changes, wrongly deployed changes and many others) based on granular change and configuration information.

It is important to emphasize that Evolven provides standalone value through these insights even without any integration. However connecting Evolven to these tools maximizes effectiveness and efficiency of the related IT processes.

1.4 OTHER TOOLS

There are many other tools in the IT Management and Automation landscape that can potentially benefit from working with Evolven:

- **Test Management:** Associate information about environment configuration and bill-of-material with test plans and test results. Ensure that pre-production environments are sufficiently aligned with the production

- **APM:** Correlate change and configuration based insights with performance and availability metrics for faster root cause analysis

- **Deployment Automation:** ensure pre-requisites of each deployment and validate deployment results

The bottom line is that Evolven naturally plugs into the existing IT tools landscape. As an innovative solution providing unique operational insights it does not replace existing tools, rather Evolven closes gaps that they have, increasing the effectiveness and efficiency of IT processes automated by these tools.

2. What is the Maturity Model for Evolven Adoption?

How organizations at different levels of maturity get value from Evolven

Companies using Evolven include a broad spectrum of industries, at various levels of maturity. Organizations lacking maturity of IT processes and have low levels of automation usually have a limited handle on the changes applied in their IT environments and limited visibility into configuration and bill-of-material of their business systems.

Mature organizations may have completely integrated change and configuration management (CCM) systems and formal processes based on these systems. Evolven can address either end of this spectrum, from closing the loop of IT processes in mature organizations to giving immediate operational control of IT environments in less formal organizations.

Evolven comes to help organizations where change is happening all over the place and IT teams have no idea what's really going on. Many times IT teams in this position feel that they have no choice and just have to accept the fact that they won't have any information about what is happening in their environments.

The alternative is running an IT operations group that is so tightly controlled that everything is locked down all the time. These organizations then struggle to just get things done, constrained by their own strict processes.

Evolven provides a middle ground between these two extremes from chaotic change environment to rigid processes, making operations less chaotic, but not so tight that nothing gets done. Evolven allows change to happen, while being fully aware of what's going on.

2.1 LESS MATURE ORGANIZATIONS

Organizations lacking formal processes can start using Evolven by detecting and then seeing what changed in a clear presentation. For example, in an environment with 10 production servers, Evolven may show how 2 of the servers experienced changes overnight. It will show the exact detailed changes that were made to each server, what level of risk each of these detailed changes has, and who was responsible for the changes.

All this information is collected and processed automatically. Evolven can even alert users when changes of certain types (e.g. critical in terms of potential impact) are detected. When an organization suffers from periodic issues caused

by changes, Evolven provides an almost instant way to avoid these issues before the organization takes much more intensive efforts to mature their processes and systems.

- **Example 1:** An organization does not have an automated framework spawning off and setting up new servers. Manual processes may cause misconfigurations that lead to incidents. By running a comparison with Evolven to a golden baseline, all unintended differences will be visible allowing the new servers to be properly configured before bringing them live. The ultimate goal of the organization might be to set up an automated server arrangement. However this takes time and Evolven can close the gap while the automated setup is being built. Once built, Evolven can continue validating automated deployment and monitor for drift.

- **Example 2:** An organization that does not keep track of all changes in some change management system may experience difficulties when some of the changes made result in incidents. Identifying what changes were made and how they can be related to the incidents is very costly. Evolven can automatically provide information about the relevant changes, accelerating root cause analysis. This can be done before a formal change process is implemented. Integrating the formal process into the organization takes time and may even hinder the agility of the organization.

2.2 HIGHLY MATURE ORGANIZATIONS

Frequently organizations with established and formal processes for change and configuration management operate on the wrong assumption that they have all the information necessary about the changes. However there is a gap between carrying out processes for documenting changes and actual changes. Many organizations still experience changes that bypass formal processes (sometimes for pretty good reasons) like for example emergencies or commonly repeated changes.

Evolven addresses this situation in several ways:

- **Unplanned changes:** Evolven notifies users when changes happen to environments at times when changes are not supposed or even not authorized to occur. Furthermore, Evolven can be integrated with change management systems, e.g. ServiceNow. Then planned

changes can be identified by their tickets, and Evolven will notify users when it detects changes that do not correlate to any approved change request.

- **Prevention:** Evolven helps to proactively maintain operational stability. For example, while the IT team is aware of planned changes, Evolven can notify operators about what actually changed, comparing deployed changes with the changes that were originally tested and ensure that changes are consistently applied.

It is important to emphasize that Evolven helps organizations at any level of maturity, However the type of implementation, use case and related benefits changes depending on the maturity of the processes in these organizations.

3. How does Evolven Fit into the Organization Structure?

How does each IT role benefit?

Evolven offers benefits to a variety of roles from development to testing to operations. However the ownership of the technology remains with one group, typically involved in deployments or production management. Alternatively, if an organization has a dedicated team responsible for IT management and automation tools, this team will own implementation and further administration of Evolven.

The Evolven implementation requires that agents be deployed on the physical and virtual servers where detailed configuration will be collected. Therefore the team responsible for server infrastructure should be involved so as to facilitate agent deployment. Most organizations require architects and security specialists to certify Evolven's technology prior to rollout.

Typically, the IT staff that will start using Evolven is determined based on the key challenges to be addressed by Evolven and the initial rollout scope.

Beyond the initial installation, the groups involved for ongoing management of Evolven depend on the challenges faced by the organization. Evolven can address many use cases, like ensuring environmental consistency, validating releases and deployments, monitoring for drift and investigating incidents.

Typically there are several key pain points and their related use cases that are the starting points for an Evolven adoption:

3.1 MEAN-TIME-TO-RESOLUTION (MTTR) NOT FAST ENOUGH

One of the first questions asked when investigating an incident is "what changed". Finding an answer to this question takes time as it involves digging in the change management system, asking various IT specialists, checking the actual state of the system etc.

Evolven can accelerate MTTR for multiple tiers of production support teams. Tier I can see actual recent changes that took place in the environment under investigation and engage relevant specialists based on the area and ownership of the changes. Tier II and III use analytics to make sense of detailed change and configuration information collected by Evolven to identify specific granular changes or differences that could be a root cause of the investigated incident. All the information is provided automatically at near real-time, significantly shortening the incident investigation process.

3.2 MAJOR INCIDENTS CAUSED BY CHANGES

Many organizations start to review their processes and toolset only once they have experienced a major production incident incited by changes. They realize that these incidents could be prevented if the changes would be intercepted, validated and confirmed right after deployment.

Evolven can address these issues. In this case, two teams could use Evolven information: a deployments team and a change management team.

- The deployments team responsibilities could be part ofh DevOps, release engineering, release management or the operations teams. These teams can use Evolven to ensure that changes are deployed correctly:

- All deployment pre-requisites are in-place

- Changes are deployed consistently

- Changes are deployed as they were tested

- The change management team concentrates on unauthorized changes or drift. Evolven can alert them when actual changes are made that bypass change management process. Then the team can escalate with regards to the respective owners of the changes and operations teams responsible for the environments where the changes were detected.

3.3 ADDITIONAL USE CASES

Once initial success is demonstrated, Evolven can be applied to additional use cases:

- **Testing teams:**
  - o Ensure that the changes that were made in production that bypassed testing are applied back to test environments
  - o Validate that test environments sufficiently represent the production configuration at least at the logical architecture level
  - o Capture all the changes made as part of performance tuning ensuring that they are properly applied later in production
  - o Get visibility into bill-of-materials of the changes delivered by the development teams to properly plan testing activities
- **Disaster recovery (DR) Teams:**
  - o Compare their environments to production to ensure that DR environments are configured up-to-date
- **Operations and infrastructure teams:**

o Compare configuration of similar servers or devices (e.g. clusters, load balanced environments etc.) to prevent any issues that can be caused by inconsistencies

The scope of the organizational adoption of Evolven typically expands from production to disaster recovery and then pre-production environments. It is important to note that there is no single recipe for successful adoption of Evolven.

The only consistent factors of success include:

- **Choosing the right team to administer Evolven**

- **Beginning by picking up a key pain point and a critical business system environment**

- **After achieving success, expanding to other teams and environments**

4. What is Evolven's Implementation Approach?

What is the Evolven implementation process, and how does the Evolven implementation differ from traditional enterprise tools

IT specialists expect lengthy, effort intensive implementation processes when considering the introduction of enterprise tools. However, the Evolven implementation is designed differently allowing users to get initial valuable results in minutes, and then iteratively expanding scope and depth of operational insights involving growing amounts of environments and users.

4.1 INITIAL SETUP

Once the scope of the rollout is decided, i.e. which servers and devices should be monitored, Evolven can be installed. This includes installing a server, distributing agents to target physical and virtual servers and pointing them if relevant to other types of devices to monitor. The server can be installed on a virtual Windows host. The agents could be distributed via any existing deployment tool using a silent installation option. As soon as the agents are installed, they start to collect configuration of common technology components recognized out-of-the-box in the monitored environment (e.g. operating systems, databases, application servers, web servers, Java and .Net applications etc.) The key here is that initial analysis of the monitored environment is available right from the beginning at least for the common technology components. We frequently see users being surprised when the initial analysis already shows significant differences between environments or environment components that were assumed to be the same.

It is important to note that preparation for the rollout will depend on the organizational processes. A formal approval for agent deployment may be required; changes in firewall policies allowing communication between the agents and the server might need to be requested. Some organizations need to complete a rollout test prior to the actual rollout. Frequently organizations start with deployment of Evolven in their acceptance or staging environments. Once they feel confident that deployment succeeded they move to production environments.

4.2 ADDING CUSTOM ELEMENTS

While Evolven provides extensive support of common technologies out-of-the-box, the majority of enterprises manage in-house developed applications and infrastructure. Evolven allows teams to model configuration of such custom environment components using a GUI-based wizard. Users establish a set of dynamic rules defining logical structure of the component configuration. An example of such a rule could be "my configuration is kept in XML files somewhere under application setup" then adding custom elements allows the user to analyze environment configuration end-to-end.

4.3 FINE TUNING ANALYTICS

Evolven provides effective cleanup and analysis of collected bill-of-material and configuration data out-of-the-box using industry best practices and knowledge. Still there is organizational specific knowledge that can eventually improve relevance of the collected information and accuracy of the analysis. It only takes a few quick data refinement iterations to capture this organizational knowledge:

- **Review changes** detected by Evolven or results of comparison between environments.

- **Mark changes** that are less relevant for a specific environment or a set of environments as insignificant in the knowledgebase. This means that similar changes will be collected for auditing purposes but will not be included in the analysis.

- **Mark changes** as critical in the knowledgebase, if there are changes that are critical for a specific environment or a set of environments, but out-of-the-box knowledgebase does not recognize them as such.

- **Create parameterization rule** if a dynamic parameter is not recognized automatically by Evolven. There could be parameters having values including dynamic elements. In order to analyze such parameters efficiently the dynamic elements should be parameterized.

- **Create some common filters** for the specific types or structure of data collected from the environments, since it is possible to narrow down the analysis result set according to a specific point of interest through filters.

The benefit of such iterative approach is the speed of setup and implementation, while introducing minimum overhead. There is no need to build complex checklists and blueprints upfront, there is no need to extract operational knowledge and dumping it into the knowledgebase at once. Typically frequent changes and differences are distributed across a limited number of common parameters. Such changes and differences are detected in initial configuration collections. So refinement based on initial results has immediate impact on the quality of change and configuration analysis. Amount of refinements decreases drastically with each analysis iteration leading to actionable perspective on end-to-end environment configuration in very short time.

4.4 LONG TERM USE

When an organization starts to use Evolven on a daily basis certain automated analysis tools should be initiated. These are alerts and reports which avoid the need for a user to log into Evolven GUI on period basis to review the data, simplifying the ongoing analysis process.

It is possible to define alerts in Evolven that will generate e-mail notifications when certain changes defined by alert conditions occur. Alerts are a standard operational practice allowing the IT staff to react efficiently to relevant events only. The difference between alerts and reports is that alerts provide a brief notification when a trigger is activated while reports provide detailed or aggregated analysis results periodically based on pre-defined schedule

Organizations use two types of implementation approaches:

- **Enterprise wide** rollout ensuring that all out-of-the-box information is collected and can be used for analysis in case of need. For example, the organization can use it if a major incident is investigated. This foundation is incrementally enhanced with custom application configuration and fine tuned.

- **Application, environment or team specific** rollout that ensures complete implementation for limited scope demonstrating clear success. Then this success serves as a driver for viral expansion of Evolven deployment and use within other areas of the organization

4.5 CASE STUDY

A brief case study from a large financial institution illustrates the simplicity of an Evolven implementation. This organization was required to prove that their disaster recovery environment is up-to-date and ready for fallback. In order to do so they decided to start with a comparison by Evolven between this environment and production. They were able to set up server, roll out agents to 1100 servers, collect and analyze information identifying thousands of critical differences, then setting up continuous monitoring avoiding further discrepancies between environments – all in 5 weeks. This effort required 1.5 FTEs for these 5 weeks. In the end, the organization executed live disaster recovery test which passed with success, following analysis and remediation based on the analysis results.

About Evolven

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Evolven's IT Operations Analytics provides intelligent answers to key IT operations challenges: how to accelerate incident resolution, how to avoid harmful and risky changes, and how to assess and optimize IT operations performance.

Evolven's new analytics approach to the chronic change & configuration challenges dramatically minimizes the risk of downtime and slashes incident investigation time.

Leading industry analyst, Gartner selected Evolven as a 2013 Cool Vendor in IT Operations Management recognizing Evolven as "the only vendor to marry IT Operations Analytics to configuration and change management". In 2013, Evolven was selected as a winner of the Red Herring Top 100 North America award, a prestigious honor that recognizes the year's most promising private technology companies across North America. Adding to this recognition, other industry analysts have recognized Evolven for "transforming change and configuration management" and as the "Industry's most adaptive change management analytics."

Evolven is a privately held company headquartered in the U.S. and has a development center in Israel. Evolven's executive team and advisory board include world-renowned experts from the world of enterprise software. Evolven is backed by leading venture capital firms: Pitango (www.pitango.com) and Index Ventures (www.indexventures.com).

See more about Evolven at www.evolven.com.