

White Paper

Granular Configuration Automation

Take control of even the most granular level of your IT environment's critical configuration

This white paper introduces the new field of Granular Configuration Automation and highlights role it fills in reducing production risks and in meeting security and compliance requirements.

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WHAT IS GRANULAR CONFIGURATION AUTOMATION?

Pioneered by Evolgen, Granular Configuration Automation is a new strategy, framework and practice that focuses on the visibility and control of an IT Environment's configuration and bill-of-material at the most granular level for enabling IT automation.

IT managers can leverage this strategy to reach the next level of automation and efficiency for their Physical, Virtual or Cloud-based IT environments, and finally close the gap that is responsible for major stability incidents.

Applying this framework empowers IT managers to operate based on thorough knowledge of their environments. This information is built from the most granular level of environment data collected from any source, including configuration files, registry, database schema, associated stored procedures and reference data.

WHY FOCUS ON GRANULAR AND WHY DOES IT MATTER?

When it comes to environment configuration, the devil is indeed in the details.

IT environments are complex. A typical environment includes thousands of different configuration parameters (for example, IBM Websphere Application Server holds over 16,000 configuration parameters alone) in which the misconfiguration or disregard of a single setting can cause an incident with major impact on the IT environment and business service.

A recent example of a high impact incident involved the leaking of critical financial information. It took the IT organization several weeks to identify, investigate and resolve the incident; resulting in lost credibility, lawsuits, precious time spent plugging holes, and a full IT reorganization. The cause? As in many similar incidents, the cause of this high impact disruption was just a single file that was not properly updated during a patch deployment.

The amount of changes coupled with the complexity of today's IT environment are the impetus for incidents caused by granular misconfigurations; which are not as rare as some might think.

A recent survey among IT Infrastructure and Operations managers was quite revealing. Over 75% of incident responders believe the information revealed regarding granular configuration changes and differences can be of high value to them in a wide range of IT environment related situation.

WHY NOW?

Times have changed. The number of underlying changes, combined with the evolution in the IT landscape, has spawned new types of challenges and increased the need for a different approach. Granular Configuration Automation provides the solution to these problems.

Change to the IT landscape is very apparent in the following areas:

- **Distributed systems**

Modern systems have shifted from proprietary code to more common software components (e.g. databases, application servers, front-end servers, messaging infrastructure, etc.) At the same time few companies are standardized on one technology or vendor. Most have heterogeneous environments. The common components are extremely flexible; enabling them to support a variety of customer requirements and conditions. This flexibility is achieved by the high degree of configurability, hence increasing sensitivity at the granular level.

Increased share of real-time as opposed to batch based integration - enabled by Java and .NET technologies together with new messaging platforms, and real-time integration has increased the interdependency of system components and the overall complexity of systems; driving a rippling effect from granular changes throughout the IT landscape.

- **Virtualization**

Virtualization has introduced a new challenge; hiding the configuration within a black box of the virtual image that could be dynamically allocated within a data center or even a cloud. The integrity of the environment and knowledge of the granular changes are essential in managing such a dynamic environment.

- **Agile Development**

New technologies have increased the pace of software development. Flexibility of the development process leads to a high amount of changes flowing into the production environment on a constant basis. This situation has increased the granularity of such changes; increasingly smaller and more frequent changes rather than a monolithic release. While this allows for greater adaptability to the market, increased agility also brings an increased risk of failure.

PILLARS OF GRANULAR CONFIGURATION AUTOMATION EFFECTIVENESS

Granular Configuration Automation is a new concept that introduces a fresh approach. Effective Granular Configuration Automation requires the ability to:

- Discover an IT environment's configuration at the most granular level
- Analyze the high volume of identified granular information to identify key details and reduce any noise created
- Provide information essential for IT automation such as a detailed bill-of-material, granular changes, configuration differences etc. in a clear, easily available manner

POTENTIAL APPLICATIONS

Granular Configuration Automation unlocks the potential to discover an environments' configuration information at the granular level that until now was out of reach. Leveraging this information, many different applications can be built.

Examples of such potential applications are:

- **Release validation** – validating releases and mitigating the risk of production outages
- **Incident prevention** – identifying and alerting of undesired changes; hence avoiding costly environment incidents
- **Incident investigation** – pinpointing the root-cause of the incident and significantly cutting the time and effort spent on investigation
- **Disaster Recovery Validation** – the accurate validation of disaster recovery plans and eliminating surprises at the most vulnerable times
- **Security** – identifying deviations from security policy and best-practices
- **Compliance** – discovering non-compliant situations and providing a detailed audit-trail

CMDB AND GRANULAR CONFIGURATION AUTOMATION: A HOLISTIC APPROACH

Granular Configuration Automation complements existing Configuration Management practice as it adds much needed value with an added layer of information, which until now was invisible; leaving companies vulnerable and unprepared for the next incident.

CMDB platforms map application, infrastructure components and relations between them to provide a foundation for various IT management processes. On the other hand Granular Configuration Automation focuses on configuration parameters at the most detailed level to intelligently identify the smallest changes and differences that risk environment stability, security and compliance.

Although addressing different challenges, CMDB platforms and Granular Configuration Automation go hand in hand. The combination of high-level perspective provided by CMDB and the in-depth granular information collected and analyzed by applying Granular Configuration Automation greatly assists in gaining complete visibility and control over IT.

GRANULAR CONFIGURATION AUTOMATION IS CRITICAL FOR VIRTUALIZATION

Virtualization simplifies certain aspects of IT management (e.g. simplification of deployment through virtual image distribution) while creating new challenges (e.g. VM sprawl). A virtual image is essentially a black box which encapsulates an environment's content and configuration.

Two questions of paramount importance must be addressed:

- How does one identify a change in a deployed virtual machine and reflect it back in the source virtual image?
- How does one maintain the integrity of an environment if the content of each machine is sourced from different virtual machines which may change as part of ongoing maintenance?

VMWare and other virtualization vendors create new tools which adapt existing system management technologies to increase visibility in the virtualized environment. However none of the solutions take a granular approach; only leading to the same gaps in visibility and control that are experienced in physical environments.

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Evolgen is pioneering the new growing field of Granular Configuration Automation, which focuses on the visibility and control of IT environment configuration and content at the most granular level. IT teams apply this approach to reduce risk to stability, security and compliance of their physical, virtual or cloud-based IT environments.

Evolgen Comparison is the first Granular Configuration Automation solution that helps IT Operations teams to identify granular changes and differences that pose risks to environment stability by comparing different environments, or an environment and its historical or golden baseline. IT teams use it for release validation, incident investigation and disaster recovery verification to reduce risk, have more uptime and increase stability.

Evolgen is a privately held, venture backed company headquartered in the U.S., with a presence in the US, Europe and the Middle East and a development center in Israel.

Established by former Mercury executives, Evolgen's executive team and advisory board include world-renowned experts from the world of IT management and enterprise software. Evolgen's investors are the leading venture capital firms: Pitango Ventures (www.pitango.com) and Index Ventures (www.indexventures.com).

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