



Database Automation: The Cure for the DBA Headache

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Start with the Bad News

So Many Headaches...

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- Complexity
- Compliance
- Corporate challenges

Database Complexity – Blame Larry

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- Oracle wants to own the full software stack
- Steadily moving storage, networking, clustering into the database
- DBAs now have to be experts in all of these areas

Database Compliance – Blame Enron

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- Compliance is security or policy driven
- Involves DBA teams working closely with auditors and security teams
- DBAs often required to implement tools, policies, solutions with minimal support

Corporate Challenges – Blame ...?

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- Mergers and acquisitions create stress and integration work for DBA teams
- Offshoring & outsourcing initiatives can increase workload for teams
- Trying to get management to do the right thing

So What are the Goals?

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- Improve productivity and efficiency
- Reduce the burden of compliance initiatives while improving process and security
- Take control of new technologies
- Have less stress

Let's Talk about the Sysadmins

An Interesting Statistic

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Number of Servers Administered by 1
Systems Administrator 10 years ago -
30

Number of Databases Administered by 1
Database Administrator 10 years ago -
18

An Interesting Statistic – cont'd.

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Number of Servers Administered by 1
Systems Administrator today – 60-300

Number of Databases Administered by 1
Database Administrator today - 21

To Sum it Up...

In 10 years:

- Sysadmins have improved efficiency by 100-500%
- DBAs have only improved efficiency by 20%

Why?

What Do DBAs Spend Their Time On?

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Non-Productive DBA Work

Installation
Patching
Auditing
Version Upgrades
Platform Migrations
Routine Administration

75-95%
of their time

Productive DBA Work

Better Queries
Faster Performance
Architecture Improvements
New Applications
Business Intelligence

5-25%
of their time

What Did Systems Folks Do Right?

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- Centralize
- Standardize
- Automate

Centralize

- Centralize responsibility and administration
- Remove fiefdoms
- Pool resources for greater efficiency

Standardize

- Farms of identical servers
- Build rules for administration
- “Patterns” for configurations and deployments

Automate

- Turn process into code
- Build “service catalogs” of operational tasks
- Focus on “low-value” or time-consuming tasks

“But enough about the servers...

How does this apply to us?”

Applying these lessons to Databases

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- *Centralize* database administration
- *Standardize* every aspect of the database infrastructure
- *Automate* as much as possible about the database

Centralized Database Administration

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- Decide internally who's going to do the grunt work to drive automation and standardization
- Help business units map their needs to standardized database resources and environments
- Improve processes and procedures through mass negotiation

Database Standardization

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- Define standard builds that include versions, platforms, patches, options, sizings, HA options
- Create standardized configurations for storage, networks, hardware
- Drill down to as few configurations as possible

Database Automation

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- Script out deployments of standard builds
- Automate ongoing administration for patch deployments
- Use automation to ease compliance and security pains

How to get Started

Begin at the beginning

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- Patching and provisioning are good first targets for database automation
- Can be justified through:
 - Time to market for new dbs
 - Compliance with security standards or process
 - Simplification of new technologies

Oracle Provisioning Automation

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- Oracle OUI supports response files and templates
- Oracle also supports “cloned” ORACLE_HOMES, which are easier to automate, but have more limitations
- Test, test, test

Oracle Patch Automation

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- Four major phases of patching
 - Understanding the patch
 - Installation/application of the patch
 - Custom events required by the patch
 - QA of the application
- Average patch takes 6 hours to deploy per database manually
- Centralizing patch documentation and scripting can dramatically reduce the first three patch phases

Task Automation

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- Built scripts to replace manual effort
- Focus on three types of tasks:
 - Simple, but need to be run repeatedly across many DBs/instances
 - Complex, run on one at a time
 - Tasks with security or compliance impacts
- Perfect examples are password changes, Data Guard automation, setting security policies on the database

A Brief Case Study

The Company

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- Mid-size electronics company
- Mixed SQL Server and Oracle shop
- Three DBAs managing approximately 80 SQL Server and Oracle instances

Their Challenges

- Lots of downtime due to improper planning and misconfigurations
- Applications took too long to get rolled out, and when they did, they were poorly written
- The DBA team was stressed and overworked

How They Fixed It

- Standardized on 1 configuration of SQL Server
- Built automation for developer admin tasks (i.e. refresh dev from prod)
- Forced application developers to conform to the DBA process

The Result

- Downtime is almost non-existent other than hardware failure
- Same three DBAs easily manage three times as many instances (250)
- Applications are on-track and built correctly

In Conclusion

The Pains are Not Going to Go Away

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- SarBox, hackers are here to stay
- If the economy weakens, there will be increasing pressure to do more with less
- Database administration will continue to grow more complex

This is the Time to Start

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- Identify what is inefficient in your environment
- Built standards and processes, and automate as much as you can
- Make sure to track how efficiency improves with automation

Thank You
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