Best Practices for Database Deployments

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Goals

- Understand how to create your own deployment mechanisms

- Learn about the tools available for automation of the deployment process

- Acquire the knowledge of how to test your deployments

The Database "Problem"

- Information persistence layer
- Businesses like their data
- Keeping that data in place can be work
  - Which is the start of the "problem"
- Object Relational Impedance Mismatch
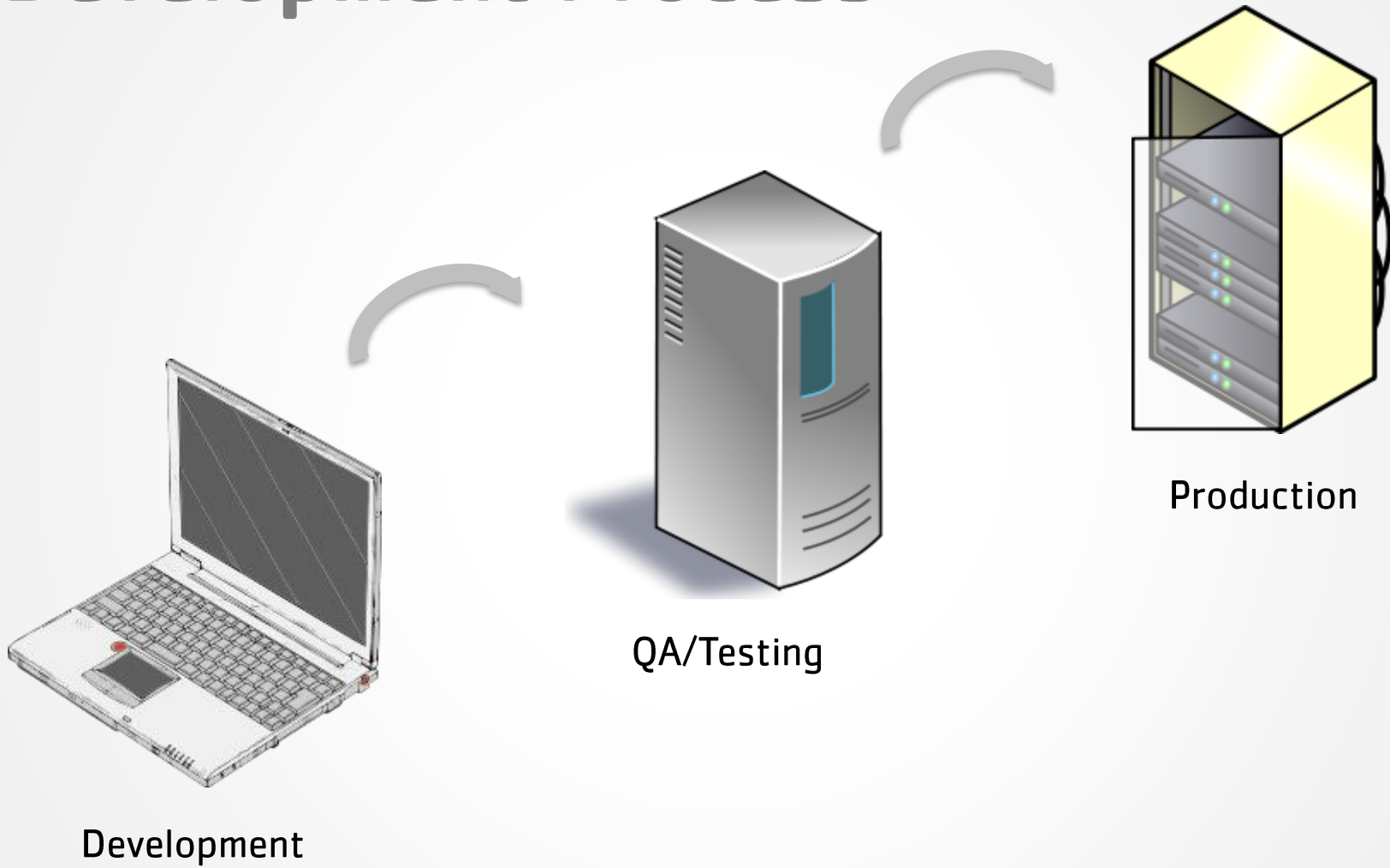 - Which is the rest of the "problem"

The Database "Solution"

- Treat it as much like code as possible
- Do the following
  - Work directly with the development team
  - Define a repeatable process
  - Put the database into source control
  - Put tests in place to validate the database
  - Automate as much of the process as possible
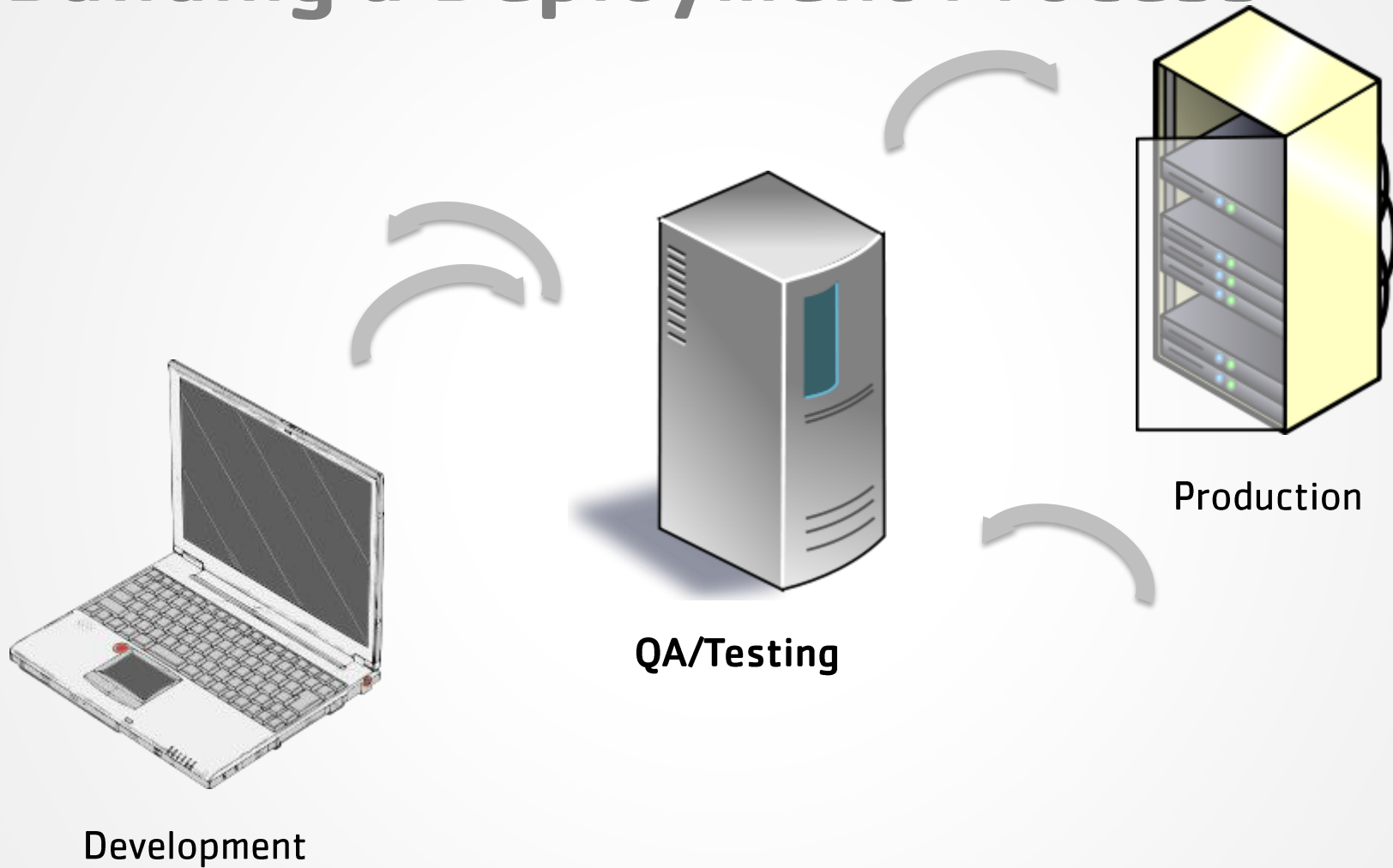- Follow the local development paradigm as much as possible

Process: Team Glue

- You must define a process
  - It's your process, you define it
- Management buy-in
- Write the process down
  - And publish it
- Review process regularly
- Follow the process
  - Exceptions have to be exceptional
- The process applies to everyone
  - No, DBAs, you're not that special

Development Process

Development

QA/Testing

Production

Building a Deployment Process

Development

QA/Testing

Production

Building a Deployment Process

- Production deployment script
- Test script on copy of production
- Generate script for production from label
- Label code in source control
- Add changes to source control
- Make changes to code
- Get code from source control

Source Control

- Two known states
  - Production
  - Source Control
- Ensures coupling between application and database
- History of changes
- Auditing

Demo

Testing Deployments

- ABCD
  - Always Be Continuously Deploying
- Unit Testing
- Continuous Integration
- Copies of production

Demo

Deploying to Multiple Environments

- Multiple moves between multiple environments
- Every deployment is practice

Deploying to Multiple Environments

- Multiple moves between multiple environments
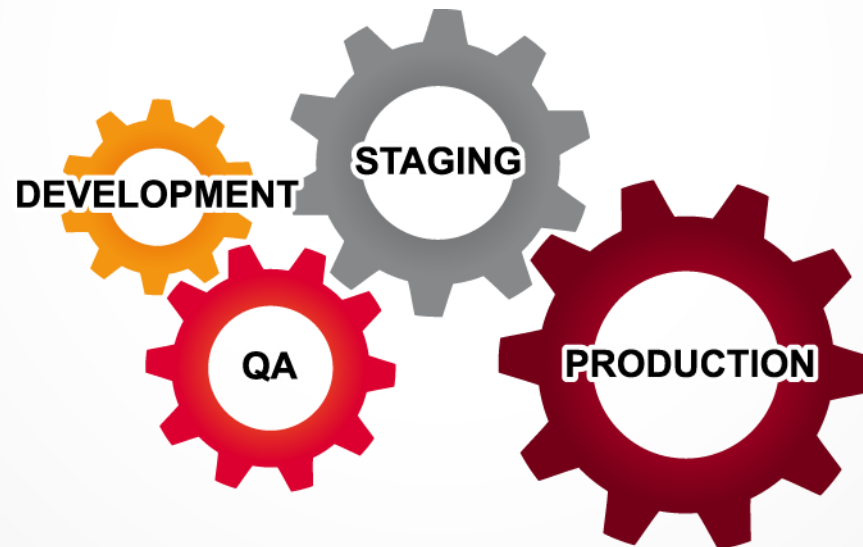- Every deployment is practice

Deploying to Multiple Environments

- Multiple moves between multiple environments
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Deploying to Multiple Environments

- Multiple moves between multiple environments
- Every deployment is practice

Demo

Integrating Database with Application

- Coupled through source control
- Labeled together
- Deployed together
- Database is deployed first

Demo

Deployment Automation

- Remove humans from the equation

- Speed the process

- Make the process repeatable

- Take advantage of the tools you know

Summary

- Define a process
- Work backwards from production
- All database code in source control
- Integrate tightly with development team
- Test and validate all code
- Automate as much as possible

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