

Data and Application Migration

The do's and don'ts



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Agenda



- Introduction
- Migration Statistics
- Drivers for Migration
- Migration Strategies
- Test Strategies
- Impact on Test Environments
- Conclusions

Migration Statistics

- **Bloor research 2007 (Global 2000 companies):**
 - Market for data migration > \$5 bn
 - 80% ran out of time or budget
 - 20% has no separate budget or timescale
- **Hitachi 2010:**
 - Migration project expenditures are on average 200 percent of the acquisition cost of enterprise storage
 - Enterprise storage migration costs can exceed US\$15,000 per terabyte migrated
 - Storage migration projects: 70% of time for planning, 30% for executing

Drivers for Migration

- Mergers, acquisitions, business process outsourcing, etc
- Deployment of a new operating or application system
- Server or storage technology replacement or upgrade
- Server or storage consolidation
- Virtualisation (client and/or server)
- Changes to database schemas and structure
- Relocation of the data centre
- Server or storage equipment maintenance
- Workload balancing or other performance-related tuning



Migration Challenges

- Minimize disruption to business processes
- Ensure all data is migrated and accounted for
- Handle the complexities of mapping data from various legacy systems to the new application(s)
- Existing data pollution
- Handle customer orders already in progress



Critical Success Factors

- Close cooperation business and IT
- Data and application migration requirements
- Full regression testing
- Full reconciliation of data
- Detailed planning
- Clear acceptance criteria
- Lessons learned



Migration strategies

- **Rebuild & Data Migration:** the application (including interfaces) is completely build from scratch
- **Binary Copy:** an exact copy (on binary level) is created and moved to the target environment
- **Lift & Shift:** physically move hardware from the old environment to the target environment
- **Change of IP address:** link to the new IP address in the target environment
- **Virtualisation**



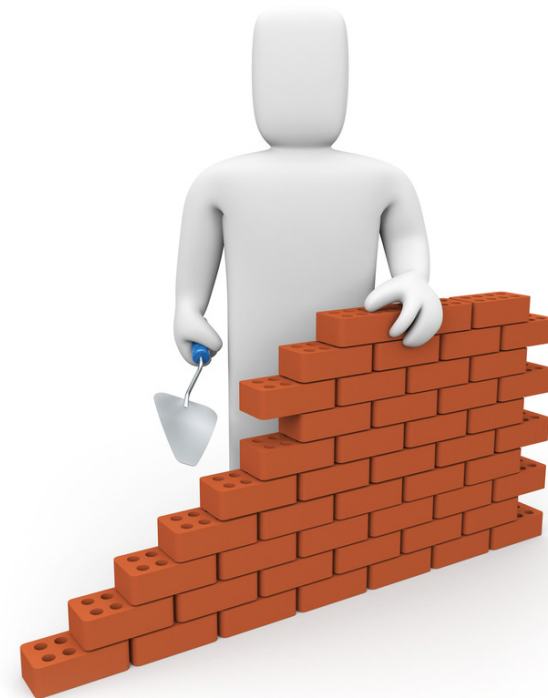
Migration Implementation

- Big-bang
- Incremental migration
- Bi-directional synchronisation
- Or a combination



Test strategy: Rebuild & Data Migration

- The application (including interfaces) is completely build from scratch
- Full extensive testing is necessary



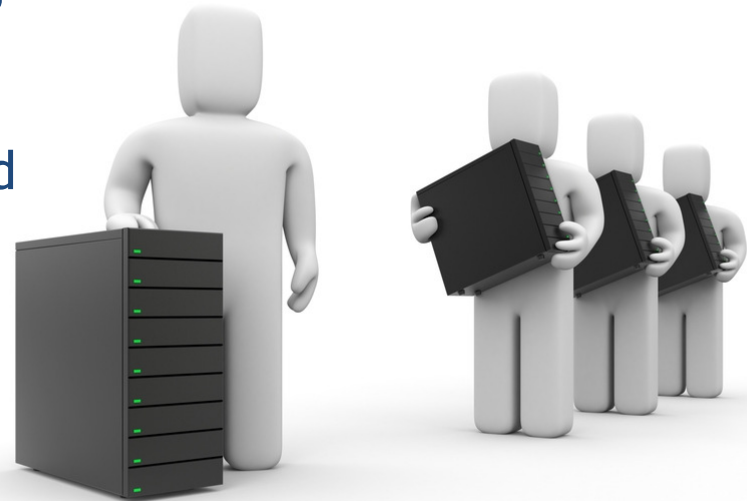
Test strategy: Binary copy

- An exact copy (on binary level) is created and moved to the target environment
- To check whether the move was successful an intake test at D or T is enough
- Necessary and depth of regression tests on Acceptance depends on business criticality



Test strategy: Lift & Shift

- Physically move hardware from the old environment to the target environment
- No interface testing needed for parts within the same Lift & Shift “hardware”
- Regression testing in Acceptance depend on business criticality and the size of Lift & Shift



Test strategy: Change of IP address

- Link to the new IP address in the target environment
- Interface testing is the most important part of testing
- Acceptance testing (regression) depends on the business risk



Test strategy: Virtualisation

- Server application: same testing as with Lift & Shift
- Client application: Extensive regression testing is necessary
- Acceptance testing (regression) depends on the business risk



Additional test types

- Performance test
- Security test
- Portability test
- Fallback & recovery (during migration and after)
- Business Continuity (resilience, fail over, disaster recovery site)



Impact on test environments

- Depending on migration strategy (Big bang, Incremental, Synchronisation)
- Connections between old and new environment must be controlled
- Network architecture should take test environments into account
- Hint: ask for updated technical architecture documents first!

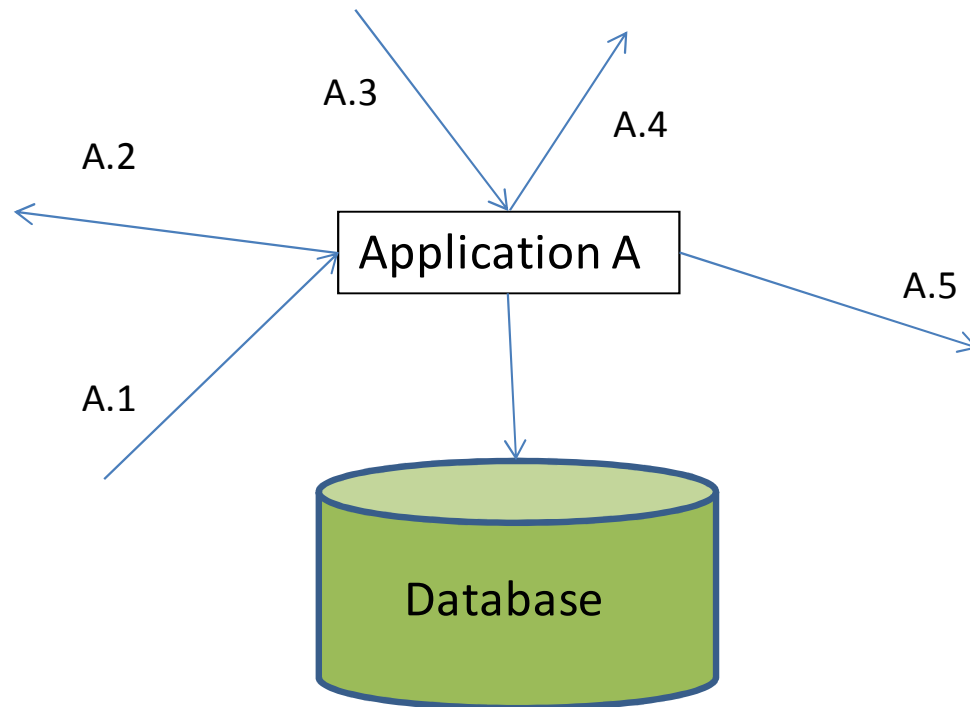


Development

Can all elements be installed in the target environment and does basic functionality work

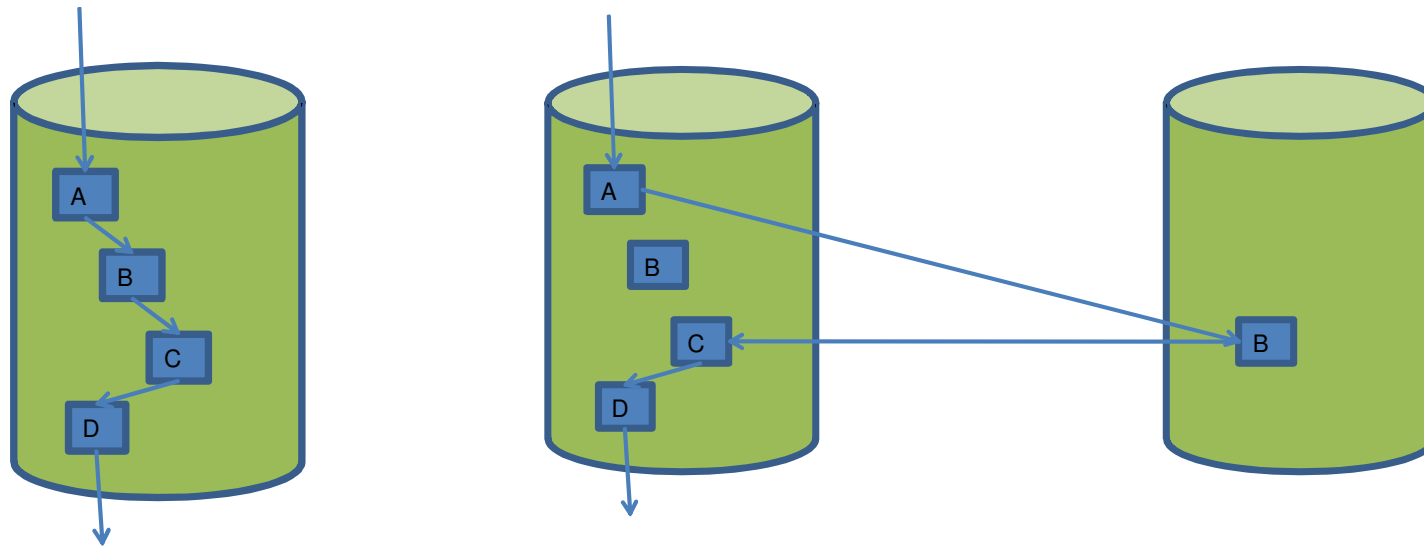


Following DTAP (2)



Test
Make sure all elements
(interfaces, etc.) work
together. Probably with
help of stubs & drivers

Following DTAP (3)



Following DTAP (4)

Production
Make sure all
applications work
together. Connectivity
test & Dry-run



Conclusions



- Test strategy depends on migration strategy
- Focus not just on functional testing
- Clear technical architecture is necessary
- Although often looked at as a technical project, for a migration business influence is very important (acceptance, business as usual)
- Don't underestimate the complexity of a migration