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Toward Business-driven Decision Support in IT Change Management

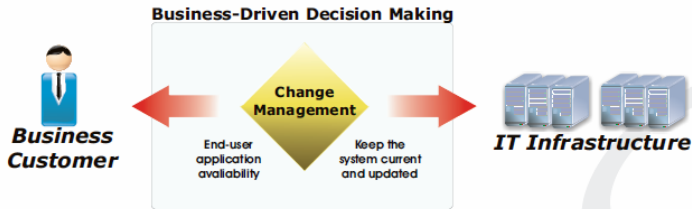
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IT Change Management

- One of ITIL's processes



The goal of the Change Management process is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes, in order to minimize the impact of change-related incidents upon business processes.



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Problems with IT Change Management

- Activities manually executed
- Data exchanged in an unstructured way (emailed documents)
- Critical decisions are made with no or little decision support
 - Ex.: planning and scheduling
- *The whole process can be improved by providing decision support in order to minimize the changes business impact*



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Business-driven IT Management

- Business Driven IT Management (BDIM)
 - When ITSM becomes business-driven
 - Use of business metrics (cost, revenue, financial loss) to make IT decisions
 - BDIM steers ITSM toward business alignment



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A definition of BDIM

- *Business-Driven IT Management is the application of a set of models, practices, techniques and tools to map and to quantitatively evaluate dependencies between IT solutions and business performance and using the quantified evaluation to improve the IT solutions' quality of service and related business results*



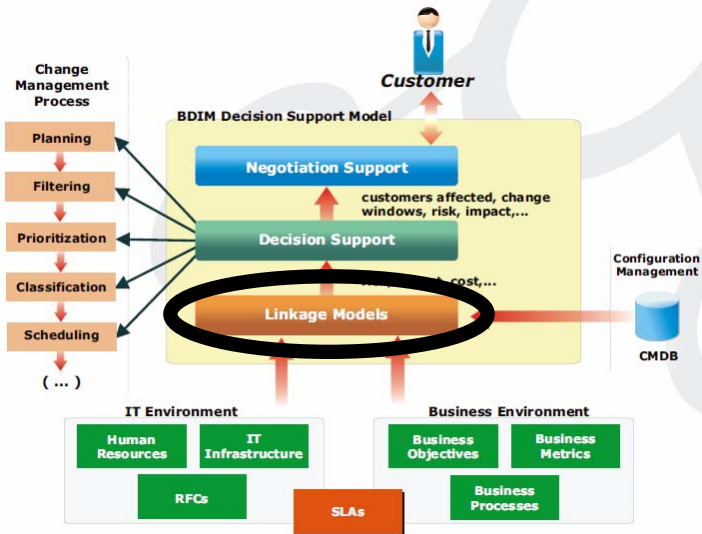
INNOVATE



OpenView University Association, 13th Workshop
Paris, France, 21, 22, 23, 24 May 2006

Business-driven Decision Support in IT Change Management

Our BDIM solutions





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Our focus: Business-IT linkage model

- BDIM approach for supporting decisions within a generic ITIL-based change management process
- Initial work on decision-making using:
 - the probability of violating a given SLA if the change is implemented at a given time, as X%;
 - the potential loss of \$Y dollars due to a change



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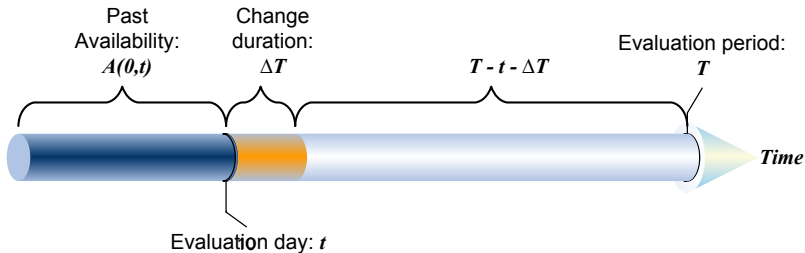


The Business-IT linkage model

- Minimize the **business loss** (KPI) impacted by:
 - Probability of SLA violation
 - SLA violation is frequently cited by change managers as a prime driver for decision making during change planning
 - System downtime
 - Even without SLA violation, the provider stops collecting fees since no session can be serviced.

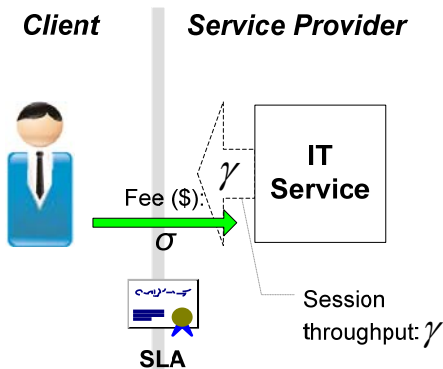
Estimating the probability of SLA violation

- At the evaluation day, the Change Manager collects the past service availability
- Then, based on the change duration and the availability service level indicator, we estimate the probability of SLA violation



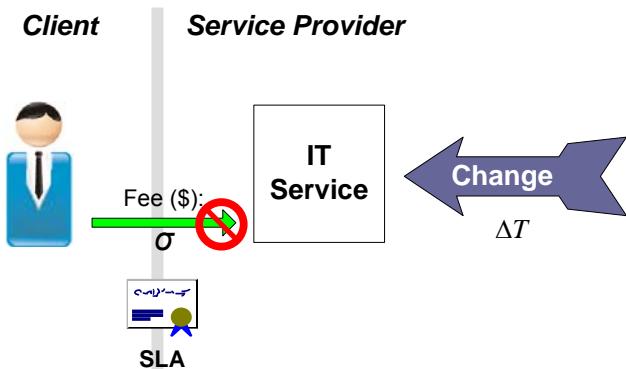
Impact of SLA violation on business loss

- The provider receives a fixed fee (\$) per successful session



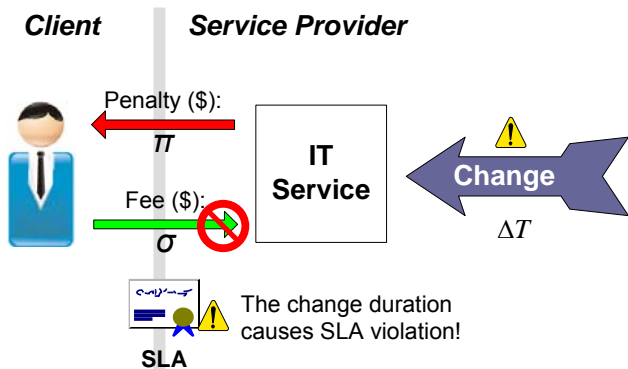
Impact of SLA violation on business loss

- A change causes service downtime
- LOSS: The provider stops receiving the fee paid per session.



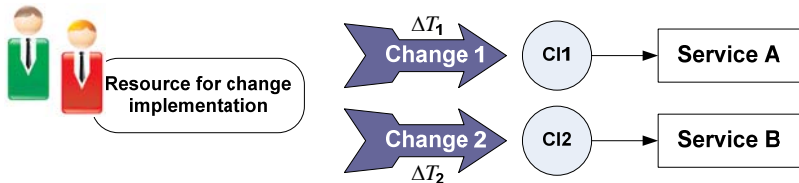
Impact of SLA violation on business loss

- The change duration causes SLA violation.
- LOSS: Penalty + Stopped revenue



Putting the linkage model to work

- Our scenario:
 - Two changes: C_1 and C_2
 - Each change supports one service
 - Each change has a proposed duration
 - Limited resources obligate Change Manager to choose one change to implement first





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Affecting the Change Manager decision-making

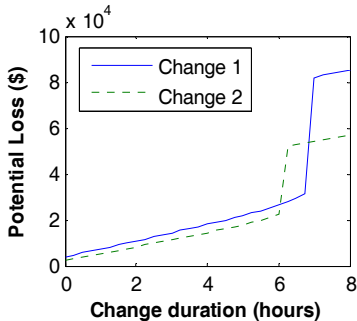
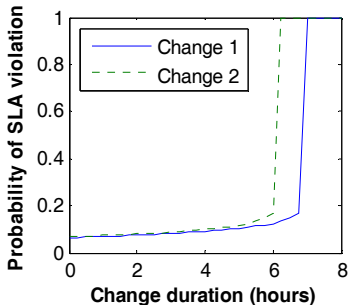
- (1) The change manager may wish to check whether the proposed change durations (ΔT) may cause SLA violation
- (2) When to implement the changes?

Parameters for services A and B affected by change 1 and 2

Input	Change 1 on Service A	Change 2 on Service B
Session throughput	14 req. per second	14 req. per second
Fixed fee per successful session	\$ 1.5	\$ 1.2
Duration of change (service unavailability)	3 hours	4 hours
Penalty for SLA violation	\$ 60000.00	\$ 35000.00
SLA evaluation period	30 days	30 days
Availability threshold (SLO)	0.990	0.990
Availability on the 10 th day	0.998	0.996

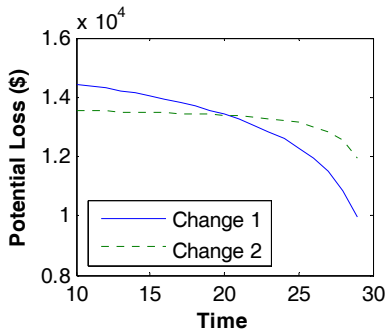
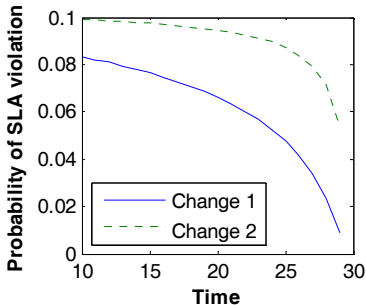
(1) Check whether the proposed change durations may cause SLA violation

- Neither C1 or C2 will cause SLA violation, their implementation durations (3 and 4 hours) are within “safe” time intervals (6 and 6.5 hours)



When to implement the changes?

- C2 has a higher probability of SLA violation than C1 during all the evaluation period
- The business loss caused by each change depends on when it will be implemented





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Conclusions

- Our target is to create a tool to assist the IT change manager in their task of scheduling changes. We are working on the first steps.
- We have described the business-IT linkage model that underlies the tool and we give a flavor of the basic operations that such tool is able to carry out
- A tool based on these simple comparisons could be used for scheduling a multiplicity of changes so as to minimize the business loss.



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Conclusions

- The work must evolve to:
 - Multiple changes (with dependencies)
 - A richer representation of IT resources
 - Multiple SLAs sharing common configuration items
 - Consider other Service Level Indicators



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