

# Choosing Between SaaS and Managed Services

Case of Telecommunications Industry

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## Background and aims

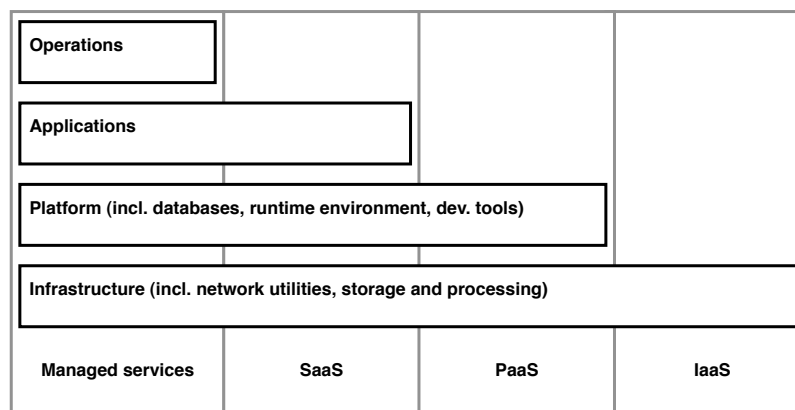
- ◆ Two strategies of the software vendor are compared: managed service hosting (MS) and Software as a Service (SaaS)
- ◆ The analysis is performed in the context of the operations/business support systems (OSS/BSS)
  - SW deployed by communication service providers in the telecommunication industry to support their operations
- ◆ The vendor's choice between SaaS and managed services is considered as a non-cooperative game

## ASP, SaaS and Managed Services

- ◆ An application service provider (ASP) hosts one or more applications which are accessed by the customers over browser and Internet
  - The burden of software installation, administration, and maintenance is shifted (outsourced)
- ◆ SaaS model further elaborates the concept of off-premise software hosting
  - The software is run on a different, one-to many multi-tenant architecture
  - Frost & Sullivan “no significant communications industry OSS/BSS vendor has migrated to SaaS as a delivery model”
- ◆ Managed services not only shifts software installation and operations efforts to the service provider, but also contracts the IT processes
  - Forrester’s survey of managed services deals signed in Europe by telecom service providers: total contract value has reached €7.8 billion



## SaaS and MS



Source: University of Jyväskylä, SEC project, 2009



## Approach

- ◆ Compare two alternative ISV strategies:
  - offer SaaS vs.
  - offer Managed Services (MS)
  
- ◆ Assumptions:
  1. For ISV, SaaS brings less revenue/customer than MS
    - temporal drop in revenue when SaaS is used (licence fees → lower usage based fees)
    - many engineers loose load/job if SaaS is adopted (no bespoke development of applications)
    - added services generate extra revenue in MS
  
  2. For CSPs, SaaS is more cost-efficient than MS
    - large up-front license costs avoided with SaaS
    - business process tailoring enabled and extra service charges avoided



## Method

- ◆ Vendor's choice between SaaS and managed services is considered as a *non-cooperative game*
  - Players (software vendors) are seen as attempting to maximize their payoffs (revenues)
  - The players are assumed to act independently, without collaboration and creating coalitions
  - Nash equilibrium is sought:
    - a strategy profile, in which no player can increase payoff by unilaterally changing own strategy



## Payoff Matrix

- ◆ Payoff matrix for Large and Small software vendors, given the vendor's strategy (SaaS vs. MS)
  - $R_M$  : revenue of managed services / customer
  - $0 < a_1 = a_2 = a_3 < 1$  : rate of decrease in revenue when vendor transits from MS to SaaS
  - $b$  : rate of decrease in revenue of vendor due to cutting prices in response to the transition of other vendor to SaaS
  - $N$  : no of cust of large SW vendor;  $n$  : no of cust of small SW vendor
  - $n_1, n_2$  : no of customers switching vendor

		Small			
		MS		SaaS	
Large	MS	$R_M * N_M$	$R_M * n_M$	$b_2 R_M (N_M - n_2)$	$a_2 R_M (n_M + n_2)$
	SaaS	$a_1 R_M (N_M + n_1)$	$b_1 R_M (n_M - n_1)$	$a_1 * R_M * N_M$	$a_2 * R_M * n_M$

## Example

- ◆ Based on values derived from Dittberner and assumptions

Payoff matrix for Large and Small software vendors

		Small			
		MS		SaaS	
Large	MS	$12.7 \cdot 65 = 825$	$12.7 \cdot 5 = 63.5$	$1 \cdot 12.7 \cdot (65 - 5) = 762$	$0.8 \cdot 12.7 \cdot (5 + 5) = 101.6$
	SaaS	$0.8 \cdot 12.7 \cdot (65 + 3) = 690.9$	$0.9 \cdot 12.7 \cdot (5 - 3) = 22.9$	$0.8 \cdot 12.7 \cdot 65 = 660.4$	$0.8 \cdot 12.7 \cdot 5 = 50.8$

Payoff matrix for two vendors of comparable sizes

		Large 2			
		MS		SaaS	
Large 1	MS	$12.7 \cdot 65 = 825$	$12.7 \cdot 40 = 508$	$0.95 \cdot 12.7 \cdot (65 - 40) = 301.6$	$0.8 \cdot 12.7 \cdot (65 + 40) = 1066.8$
	SaaS	$0.8 \cdot 12.7 \cdot (65 + 25) = 914.4$	$0.9 \cdot 12.7 \cdot (40 - 25) = 171.5$	$0.8 \cdot 12.7 \cdot 65 = 660.4$	$0.8 \cdot 12.7 \cdot 40 = 406.4$

## Results

- ◆ Nash equilibrium achieved (for 2 players) when:
  - two large firms both adopt SaaS, or
  - small firm adopts SaaS, while the large doesn't.
- The strategy of small ISV does not affect large ISVs



## Analysis

- ◆ In the telecommunication domain, MS provisioning is more common than SaaS:
  - operators outsourcing their OSS/BSS solutions to vendors offering them as managed services: (Sen 2009); (Kumar 2008); (Motorola 2009); etc.
  - “no significant communications industry OSS/BSS vendor has migrated to SaaS as a delivery model” (Stratecast 2008)
- ◆ Possible explanations:
  - The reluctance of the vendors to adopt SaaS may be seen as a manifestation of the tacit collusion sustained by (Ivaldi et al. 2003):
    - Entry barriers
    - Frequent interaction and frequent price adjustments
    - Market transparency
  - The proliferation of managed services may be partly attributed to the asset specificity of the OSS/BSS software

