

Requirements engineering in Cloud Computing

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CS846 : *Advanced Topics in Requirements Engineering*

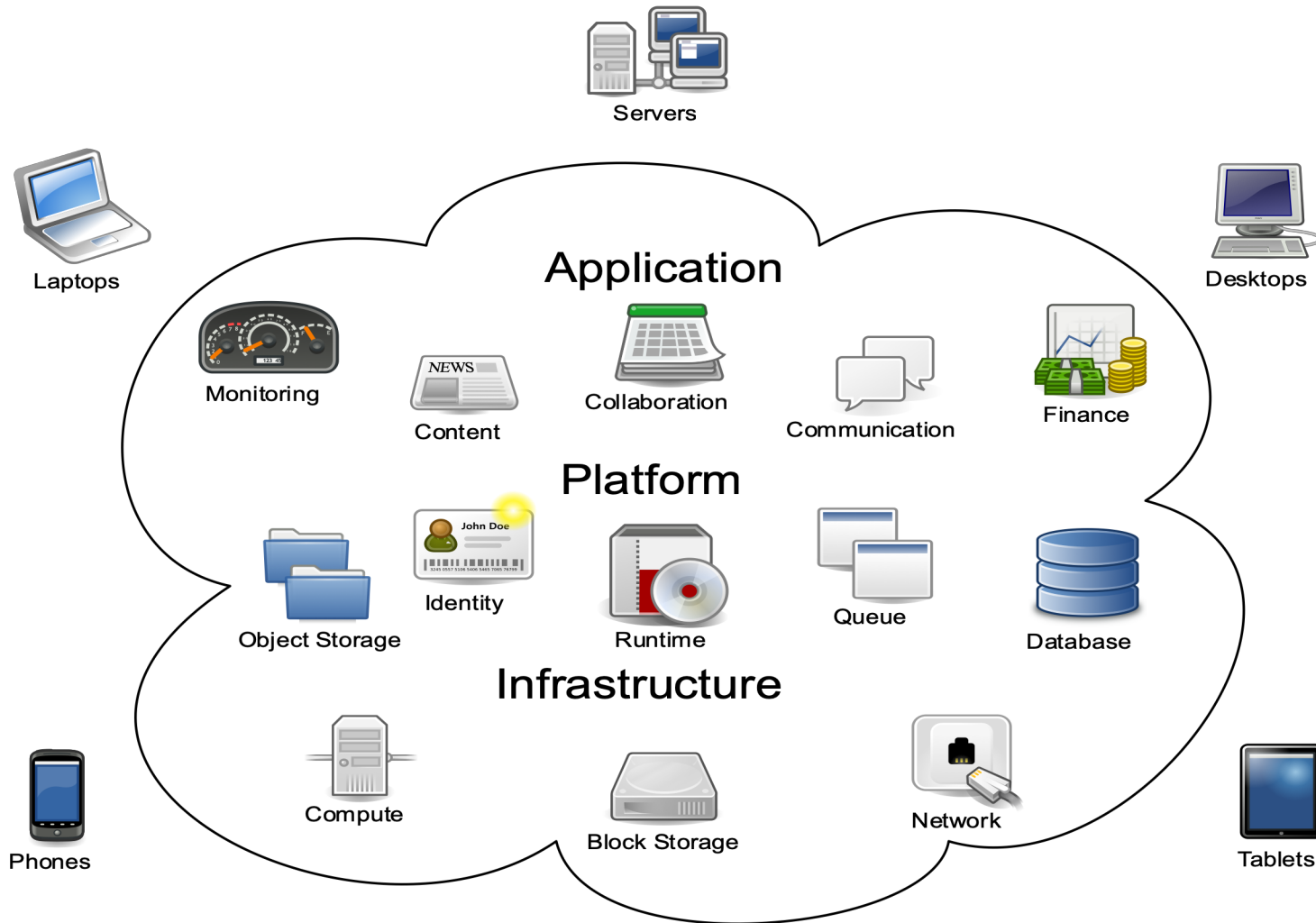


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Agenda

- Cloud Computing
- Motivation
- Case Study
 - Traditional RE Approach
 - Goal based RE Approach
- Conclusion

Cloud Computing



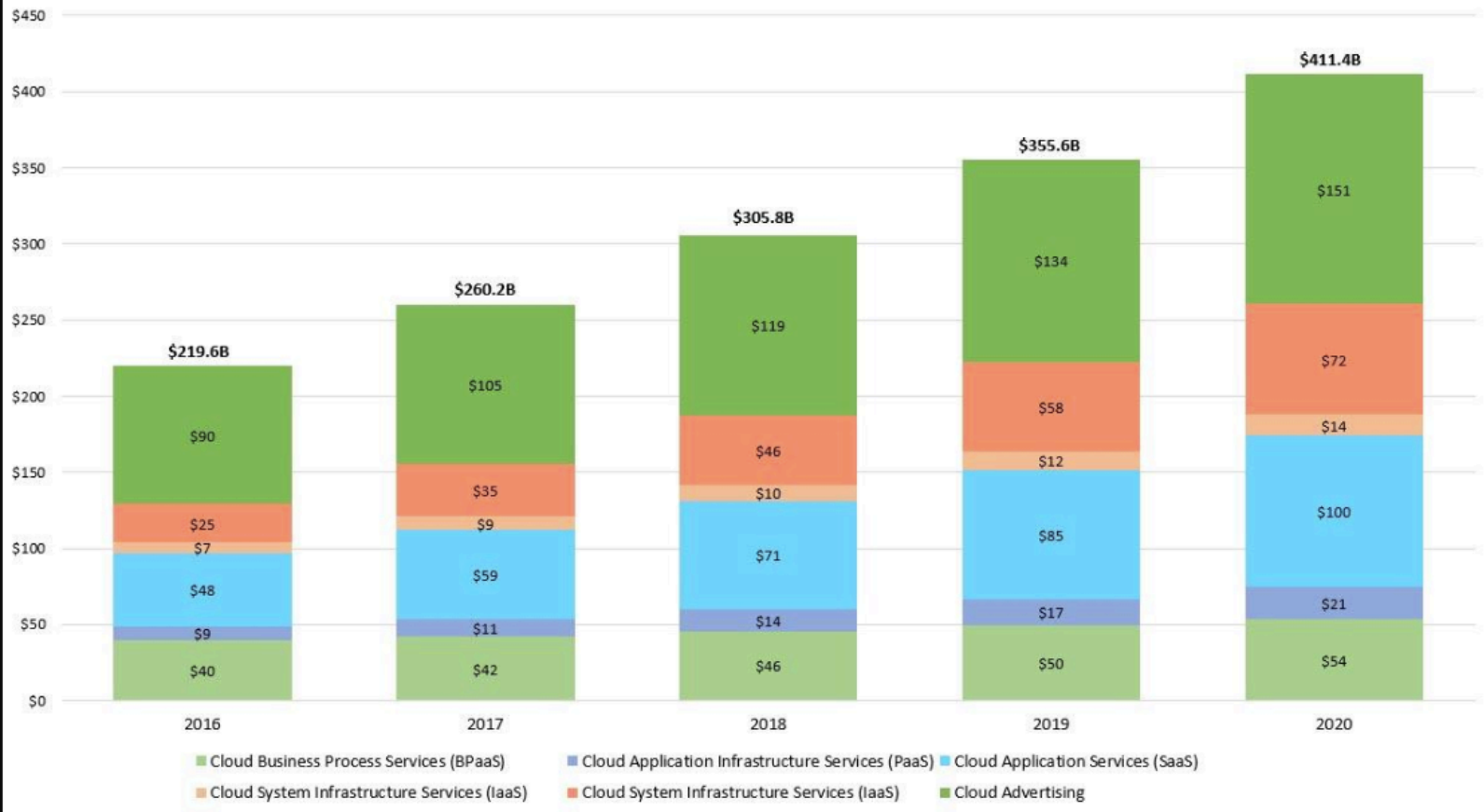
Cloud computing

Advantages of Cloud Computing

- Flexibility
- Fault tolerance
- Cost Reduction
- Scalability
- Security
- Performance

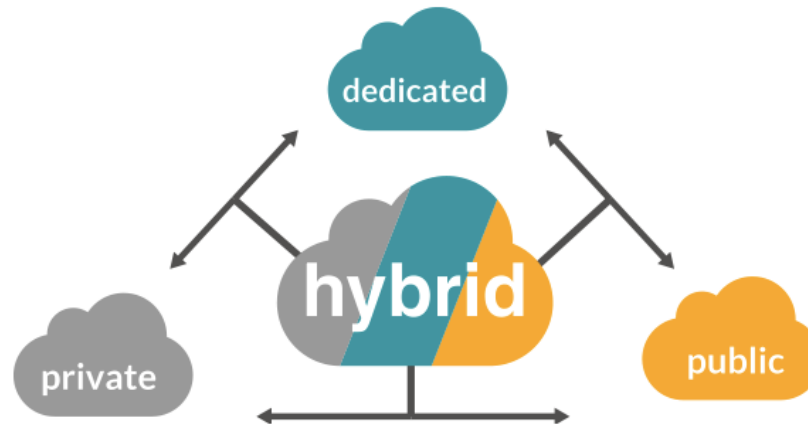
Worldwide Public Cloud Services Revenue Forecast (Billions of U.S. Dollars)

Source: Gartner (October 2017)



Motivation for requirements engineering

- Best model, type and service



- Business priorities changes

Motivation for requirements engineering

- Product changes like adding new features or security policies
- Market change – targeting new market or customers
- New solutions and technical changes

Motivation for requirements engineering

- Government policy changes like Data localization
- Infrastructure costs

Case Study

Company X wants to move its Inventory Management application to cloud. Some of the key requirements –

- Security requirements
- Functional requirements
- Non Functional requirements – Availability, Support, Response time
- Future upgrades and maintenance
- Adhere to country's data regulations

Traditional RE Approach

- Requirements Elicitation-
 - Initial stage of requirements
 - Gather core requirements
 - Search for cloud providers

Traditional RE Approach

- Requirements Analysis and Negotiation-
 - Gather information related to cloud providers
 - Reassess the requirements based on finding
 - Prioritization and negotiation
 - Risk analysis of the tradeoffs

Traditional RE Approach

- Requirements Evaluation-
 - Continuous process of evaluation
 - Short list candidates
 - Evaluate the end user goals

Traditional RE Approach

- Requirements Documentation and Management-
 - Informal contract
 - Documentation of finalized requirements
 - Document changes required in existing process

Goals based RE Approach

- Acquire and Specify Goals -
 - Strategic and business goals
 - Core goals
 - Operational goals
 - Define acceptance criteria for goals

Goals based RE Approach

- Search for Cloud Service Provider -
 - Search based on the generic goals
 - Critical goals need to be meet
 - Provide confidence degree for each functionality
 - Trial period

Goals based RE Approach

- Performance matching -
 - Gather information for operational goals
 - Evaluate score for each operational goal
 - Examine the global satisfactory score
 - Evaluate scores for multiple vendors
 - Also gather user reviews

Goals based RE Approach

- Analyzing Mismatch and Risks -
 - Evaluate mismatch in goals and tradeoffs
 - Clearly define risk factors which are intolerable
 - Preventive risk management strategy
 - Risk Identification
 - Risk Analysis
 - Risk Mitigation

Goals based RE Approach

- Finalize Cloud Provider -
 - Optimal cloud provider
 - Maximize satisfaction of goals and reduce risk
 - Factors to assess –
 - Cost
 - Value
 - Risk

Conclusion

- What is cloud computing?
- Challenges in RE for cloud computing
- Case study
- Traditional RE Approach
- Goal based RE Approach

References

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Thank You!

Q & A