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Storage Device Optimizations for Systems and Applications

Rohit Gupta

Senior Manager, Enterprise OEM Product Marketing and Strategy

August 7, 2019



Flash Memory Summit

Agenda

1 Systems and Applications Challenges

2 Systems and Applications Architecture

3 System Architectural Choices (Proliferation)

4 Device Optimizations for Systems and Applications

5 Conclusion

Systems and Applications Challenges

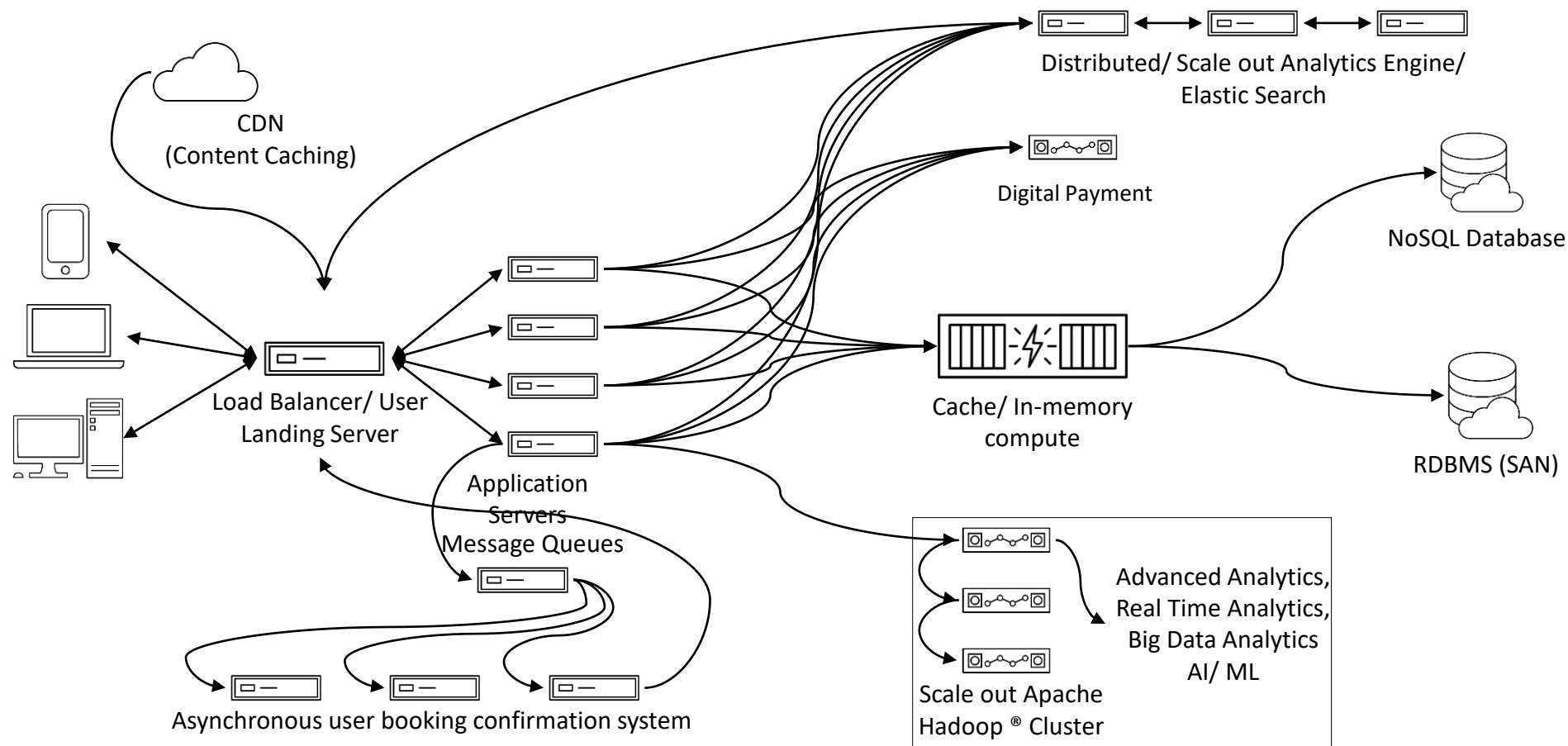
Are systems and applications optimized?

- Applications, systems, and deployments are complex today
 - Applications are integrating/ automating different and complex pieces together
 - Databases, transactions, business intelligence, predictive analytics (including AI/ ML), content delivery etc.
 - Running virtual machines, containers, microservices etc.
 - Public cloud
 - Leveraging ubiquitous, distributed, commodity x86, scale out infrastructure
 - On Premise infrastructure
 - Scale up systems, data services, hyperconverged/ converged infrastructure
 - Hosted, Co-location cloud
 - IaaS, PaaS, SaaS services
- Applications and systems may not be storage devices optimized
- In this presentation, we will look at storage device optimization in the era of complex system/ application architecture

System, Application Architecture*

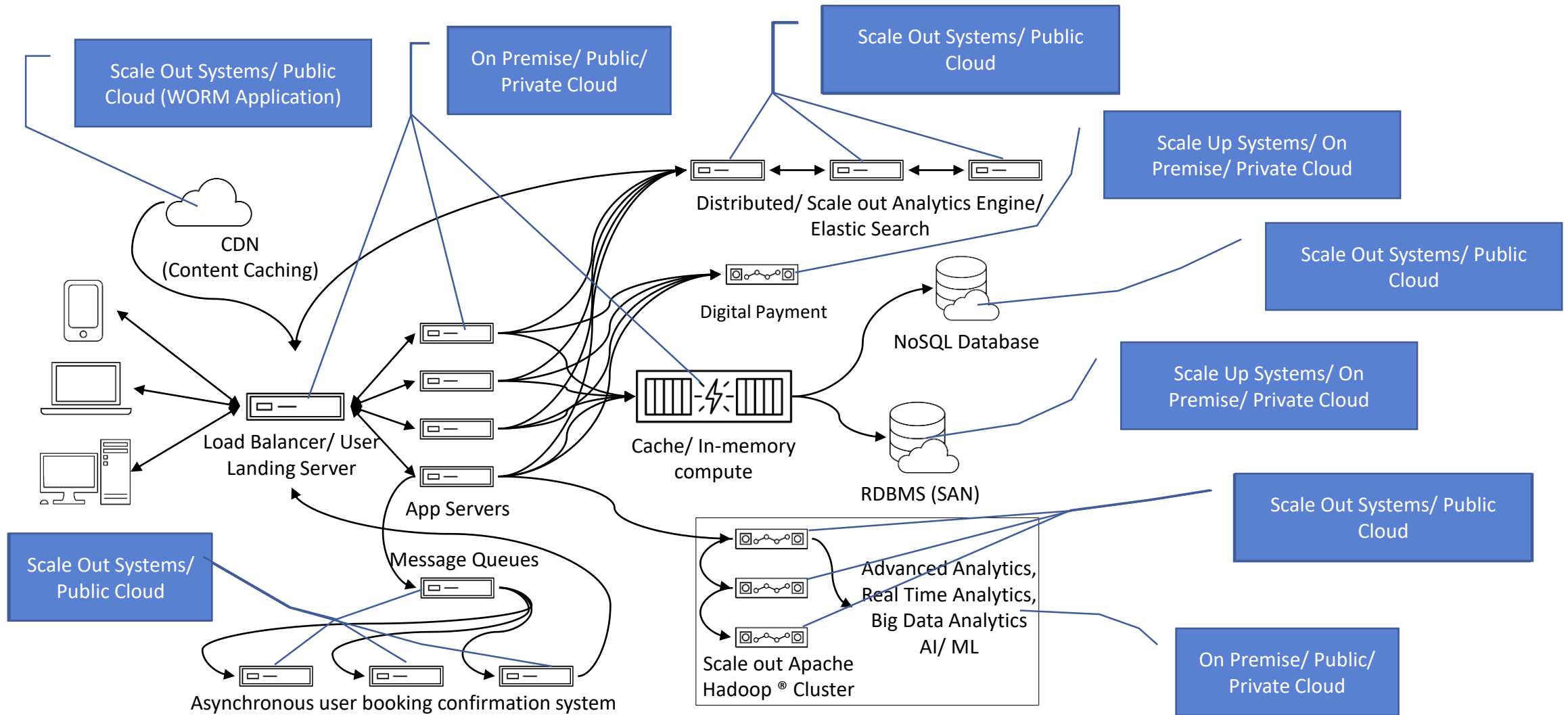
System architectural choices have proliferated but may not completely leveraged

- Online ticket aggregator system- airlines, trains, movie ticket booking system
 - Highly available and concurrent, Fault tolerant, Geo dispersed, Digital payments, User comments/ reviews/ ratings, Confirmations, Content delivery, UI/ UX



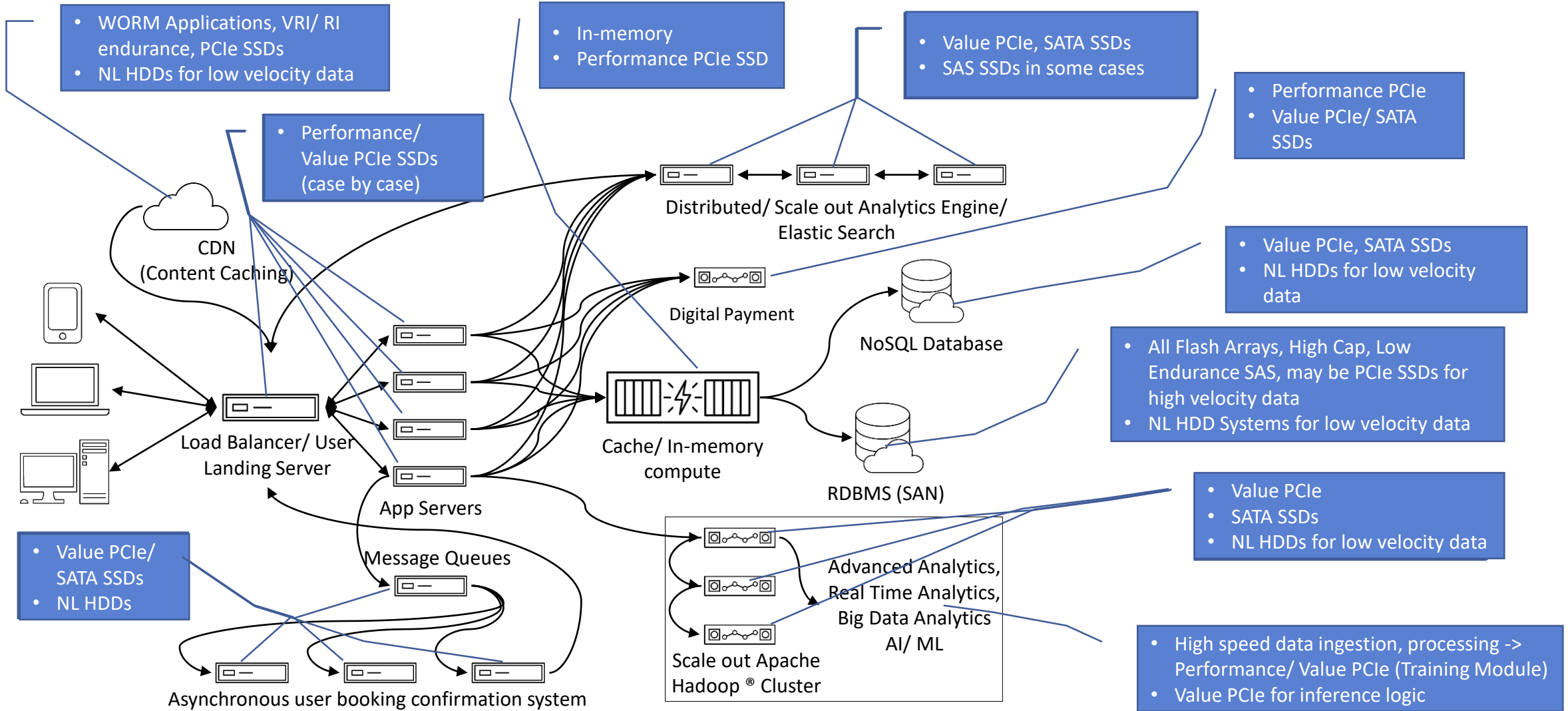
System Architectural Choices*

System architectural choices have proliferated but not completely leveraged



System, App. and Device Optimization*

Are systems optimized to take advantage various storage devices?



Conclusion

Systems, Applications should embrace emerging architectural choices i.e. public / on-prem/ hybrid cloud and optimize underlying storage devices as well

- Applications, systems and deployments are complex today, architectural choices have proliferated in the last few years
- A lot of focus has been given to compute, memory, network and cloud options (public, private, hybrid)
- Choice of storage devices not fully leveraged; performance, media, form factors options have increased in the past few years and they will continue to expand
- Users should embrace cloud choices as well as optimize systems and applications with various storage devices- performance, media, persistency, and emerging form factors



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Architecting Data Infrastructure for the Zettabyte Age