



DataStax Enterprise Architecture

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Agenda

1	Tuneable Consistency
2	Lab2 : Hands-On Consistency

Consistency

CAP

Consistency

Tunable at runtime

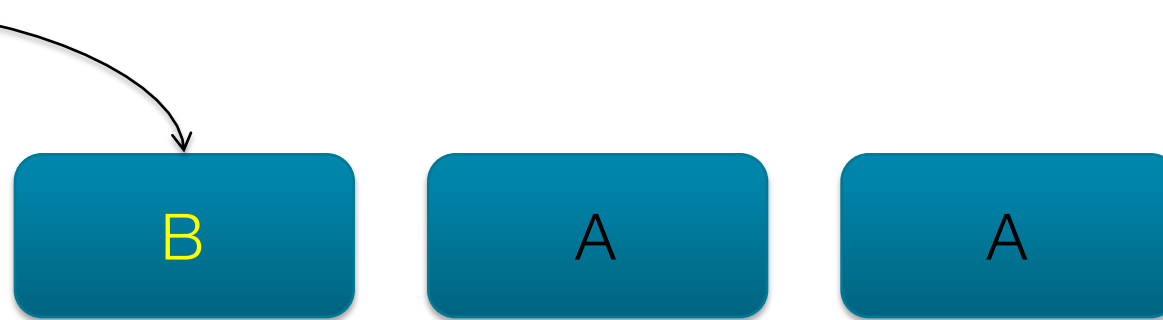
- ONE
- QUORUM (strict majority w.r.t. RF)
- ALL

Apply both to read & write

Consistency in action

RF = 3, Write ONE, Read ONE

Write ONE: B



data replication in progress ...



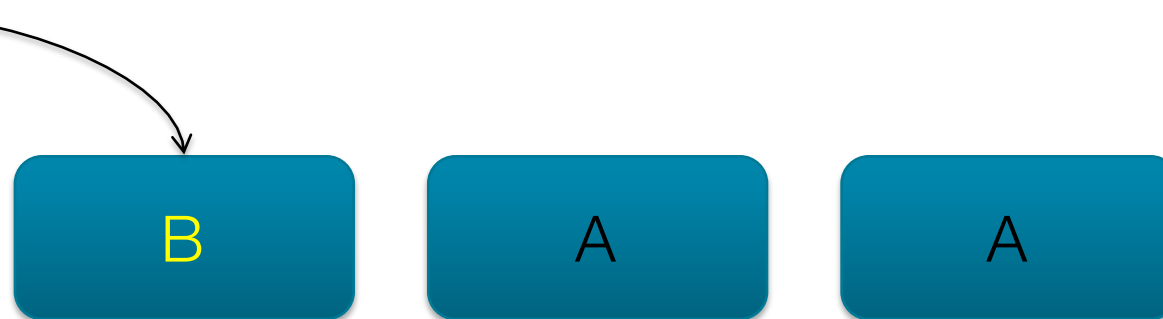
Read ONE: A



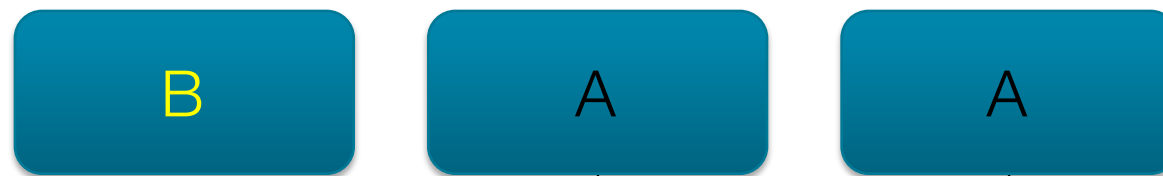
Consistency in action

RF = 3, Write **ONE**, Read **QUORUM**

Write **ONE**: B



data replication in progress ...

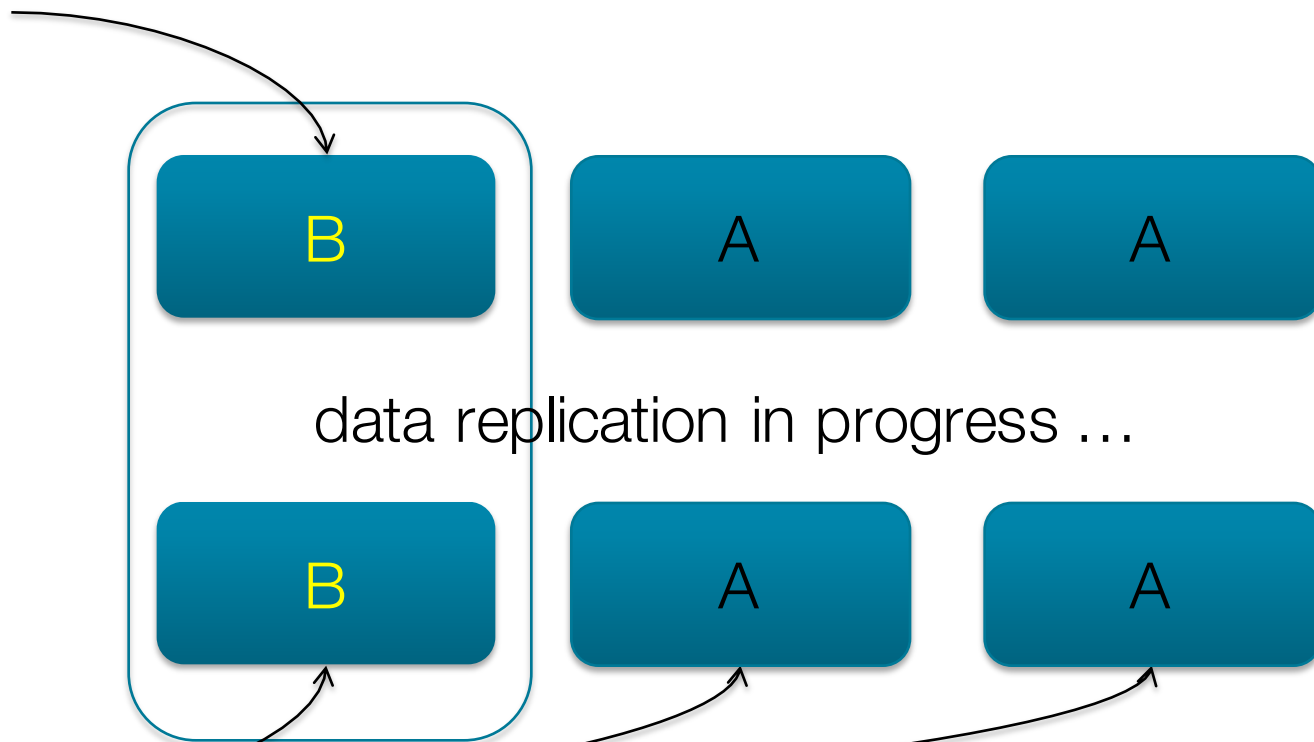


Read **QUORUM**: A

Consistency in action

RF = 3, Write **ONE**, Read **ALL**

Write **ONE**: B

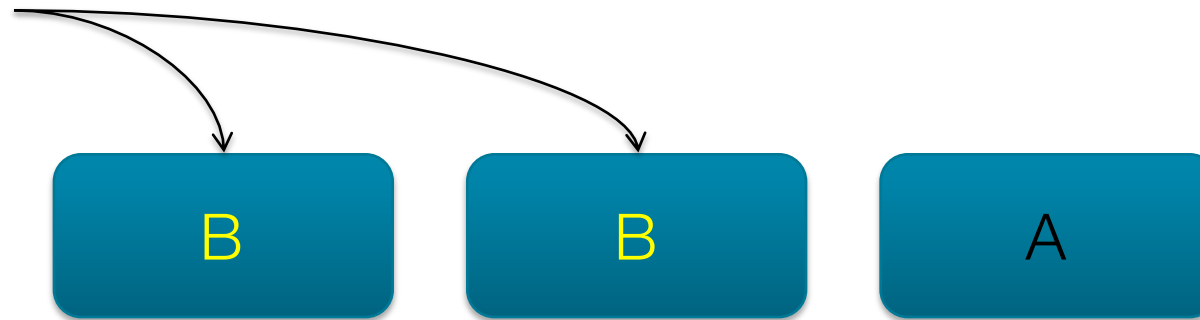


Read **ALL**: B

Consistency in action

RF = 3, Write **QUORUM**, Read **ONE**

Write **QUORUM**: B



data replication in progress ...



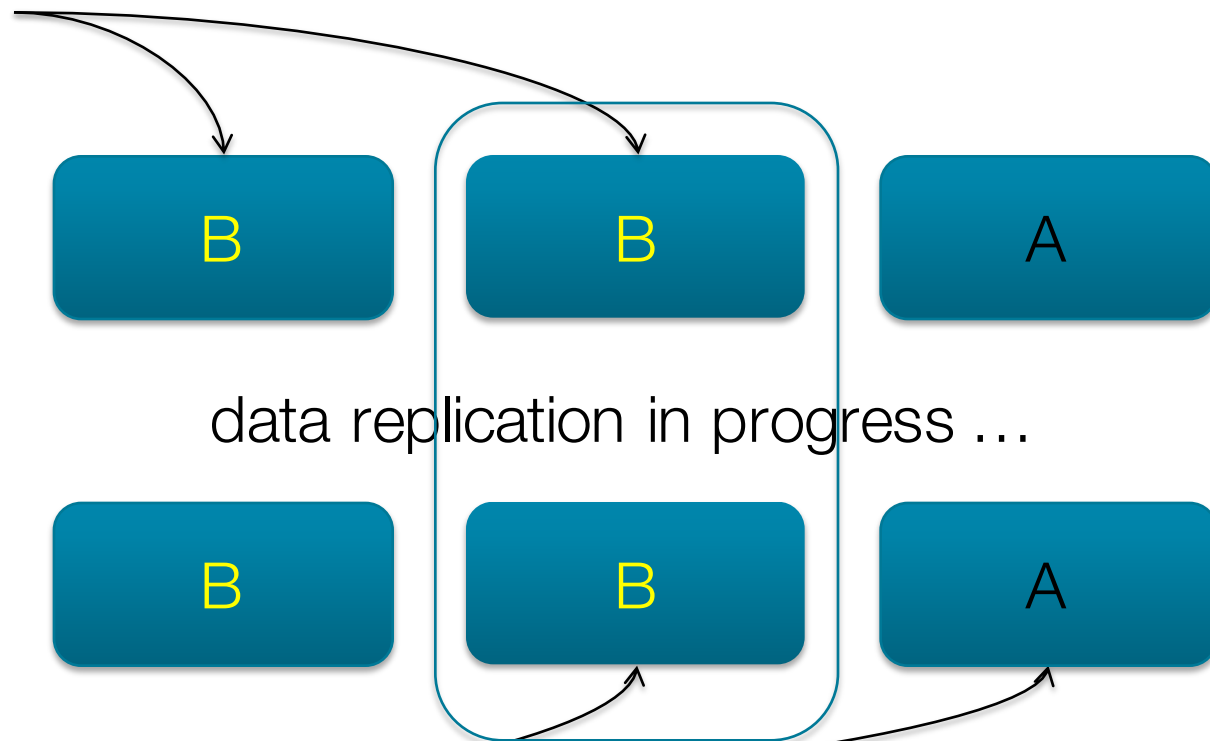
Read **ONE**: A



Consistency in action

RF = 3, Write **QUORUM**, Read **QUORUM**

Write **QUORUM**: B



Read **QUORUM**: B

Consistency trade-off

Latency

Consistency



Consistency level

ONE

Fast, may not read latest written value

Consistency level

QUORUM

Strict majority w.r.t. Replication Factor

Good balance

Consistency level

ALL

Paranoid

Slow, no high availability

Consistency summary

ONE_{Read} + **ONE**_{Write}

☞ available for read/write even (N-1) replicas down

QUORUM_{Read} + **QUORUM**_{Write}

☞ available for read/write even 1+ replica down

Lab 4 : Hands-on Consistency

Vielen Dank!