



# DataStax Enterprise Consistency

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# Agenda

1	Tuneable Consistency
2	Lab2 : Hands-On Consistency

# Consistency

CAP

# Consistency

Tunable at runtime

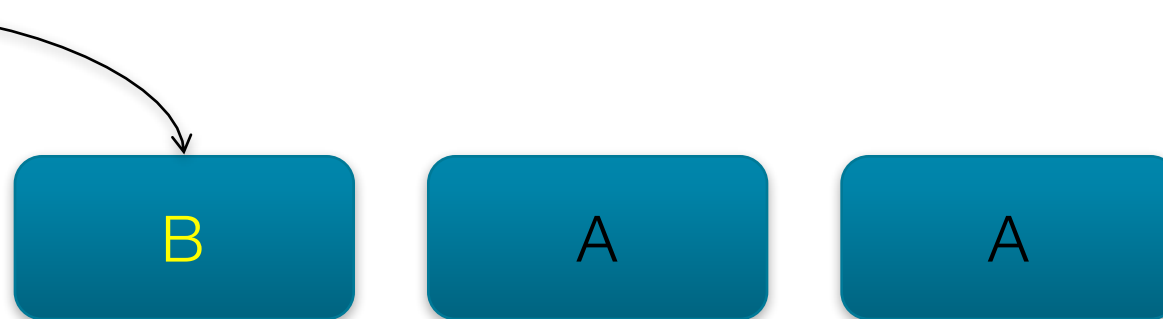
- ONE
- QUORUM (strict majority w.r.t. RF)
- ALL

Apply both to read & write

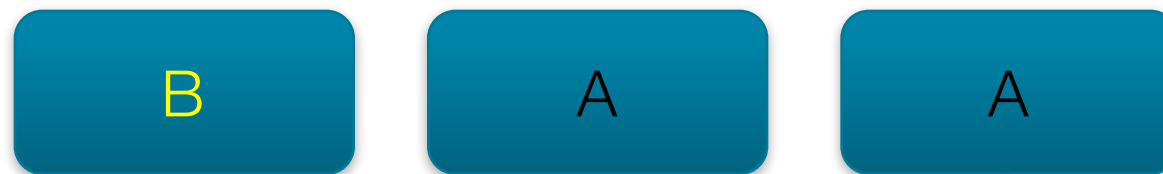
# Consistency in action

RF = 3, Write ONE, Read ONE

Write ONE: B



data replication in progress ...



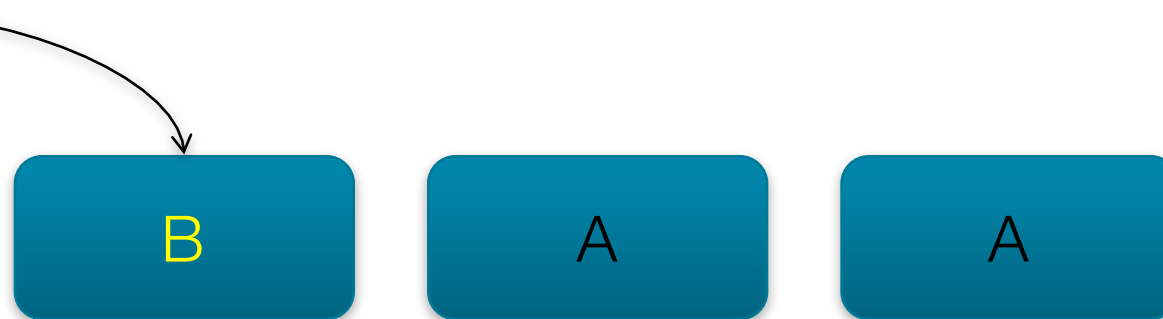
Read ONE: A



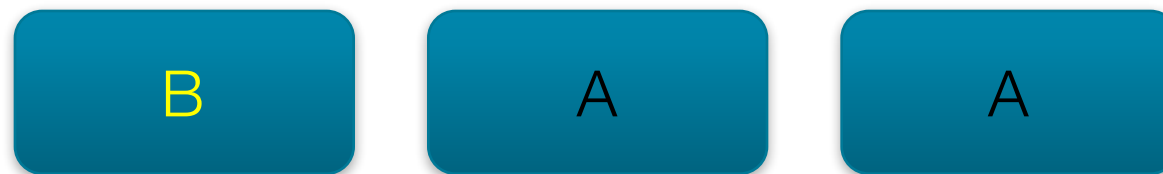
# Consistency in action

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

Write **ONE**: B



data replication in progress ...



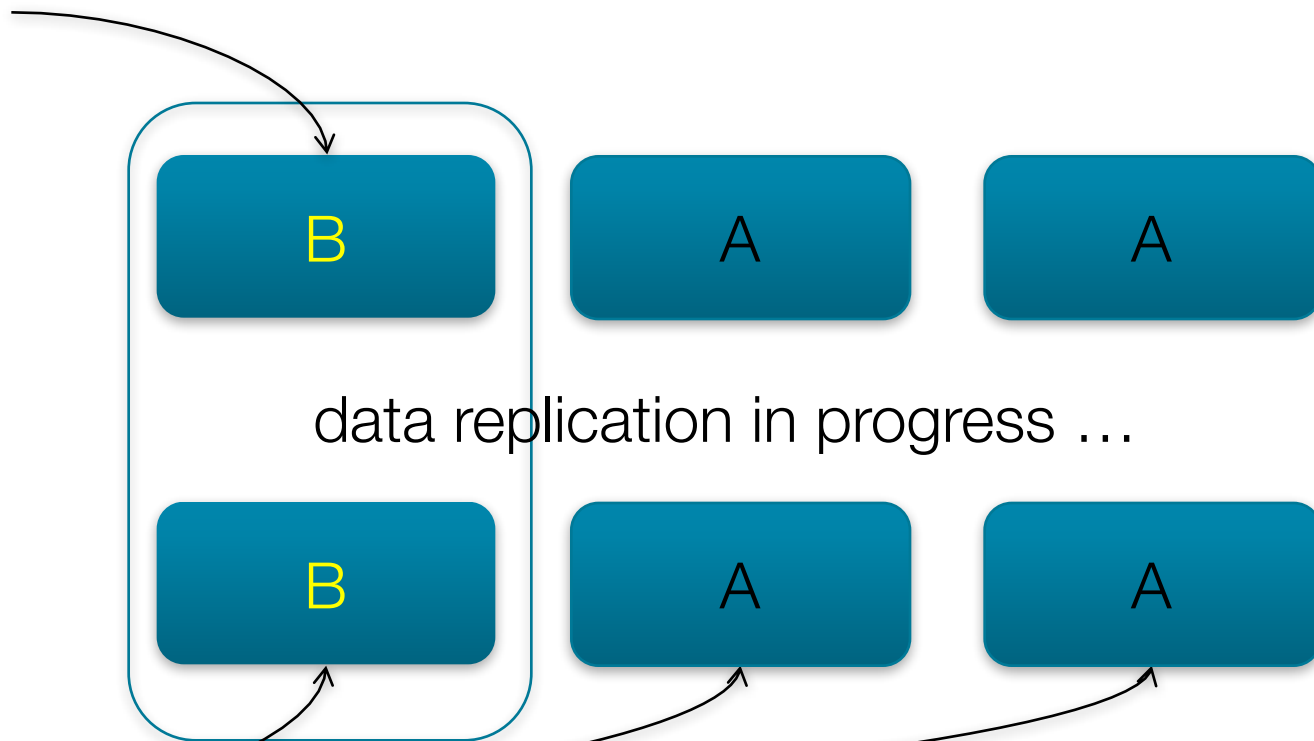
Read **QUORUM**: A



# Consistency in action

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

Write **ONE**: B

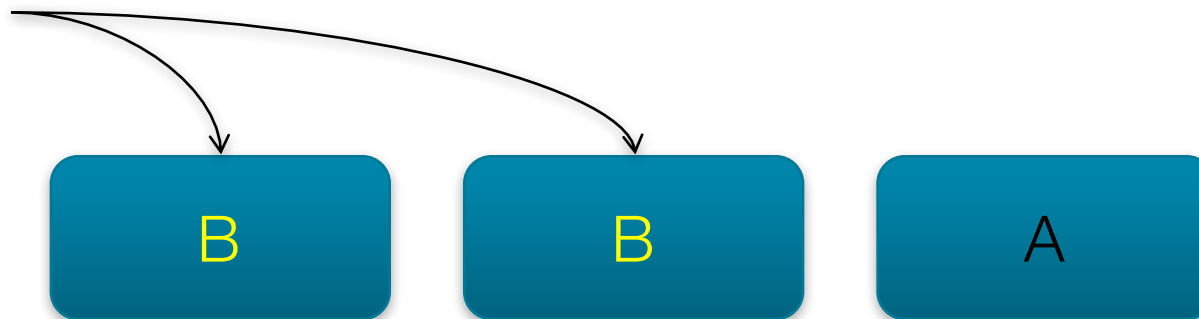


Read **ALL**: B

# Consistency in action

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

Write **QUORUM**: B



data replication in progress ...



Read **ONE**: A

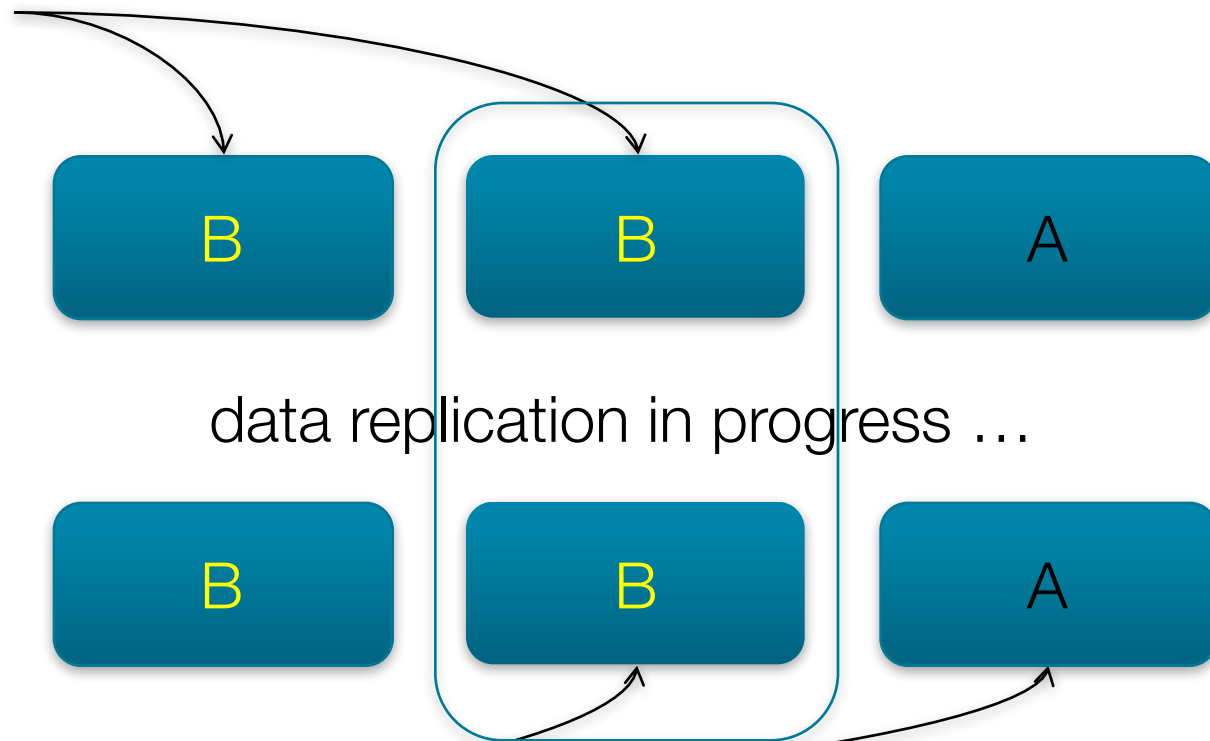




# Consistency in action

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**<sub>Read</sub> + **ONE**<sub>Write</sub>

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

**QUORUM**<sub>Read</sub> + **QUORUM**<sub>Write</sub>

☞ available for read/write even 1+ replica down

# Lab 4 : Hands-on Consistency

Thank You!