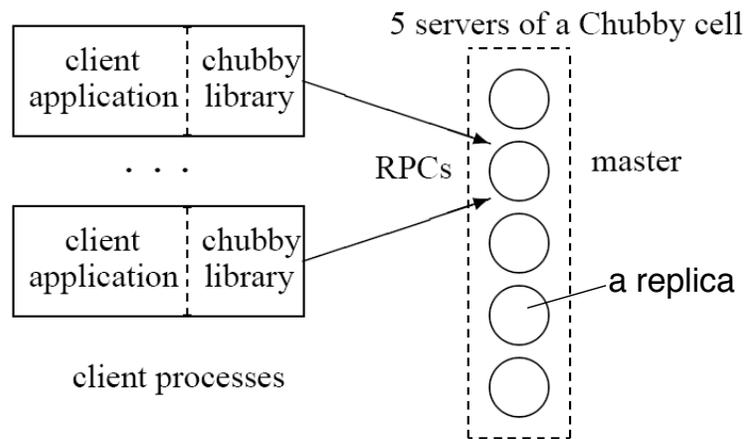


# Storage Systems



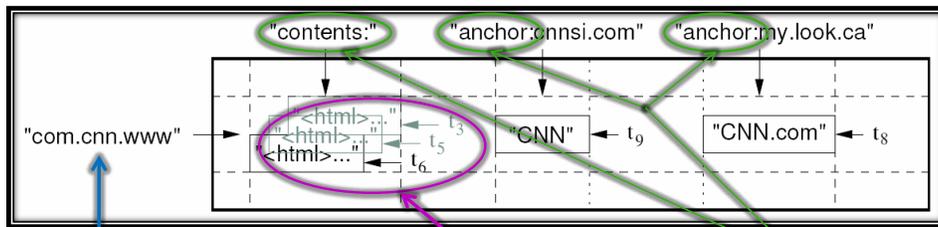
# Chubby Lock Service



# Bigtable Data Model

(row:string, column:string, time:int64) → string

## Webtable

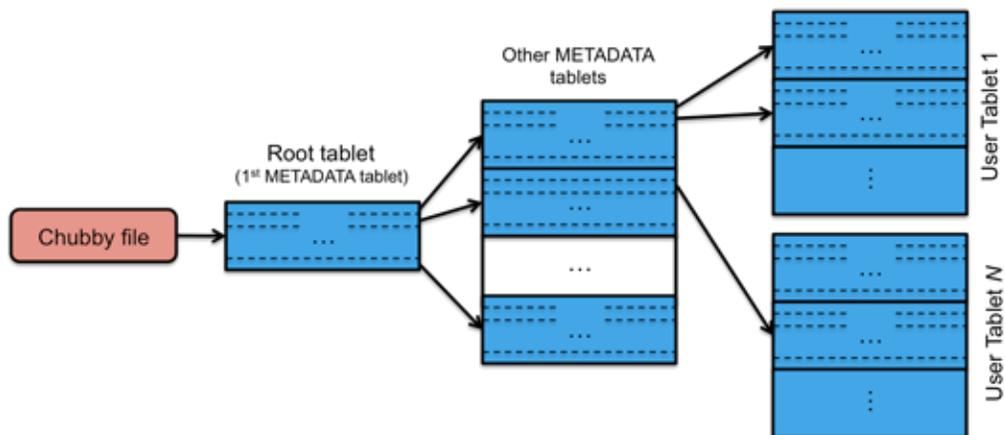


Row key: up to 64KB,  
10-100B typically,  
sorted by reverse URL

cell w/ timestamped  
versions + GC

column families

# Bigtable Hierarchy



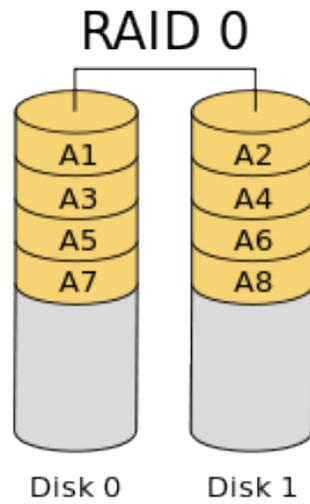
# Bigtable API Example

```
// Open the table  
  
Table *T = OpenOrDie("/bigtable/web/webtable");  
  
// Write a new anchor and delete an old anchor  
  
RowMutation r1(T, "com.cnn.www");  
  
r1.Set("anchor:www.c-span.org", "CNN");  
  
r1.Delete("anchor:www.abc.com");  
  
Operation op;  
  
Apply(&op, &r1);
```

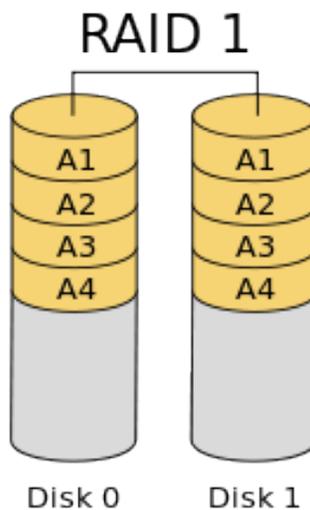
# Storage Systems



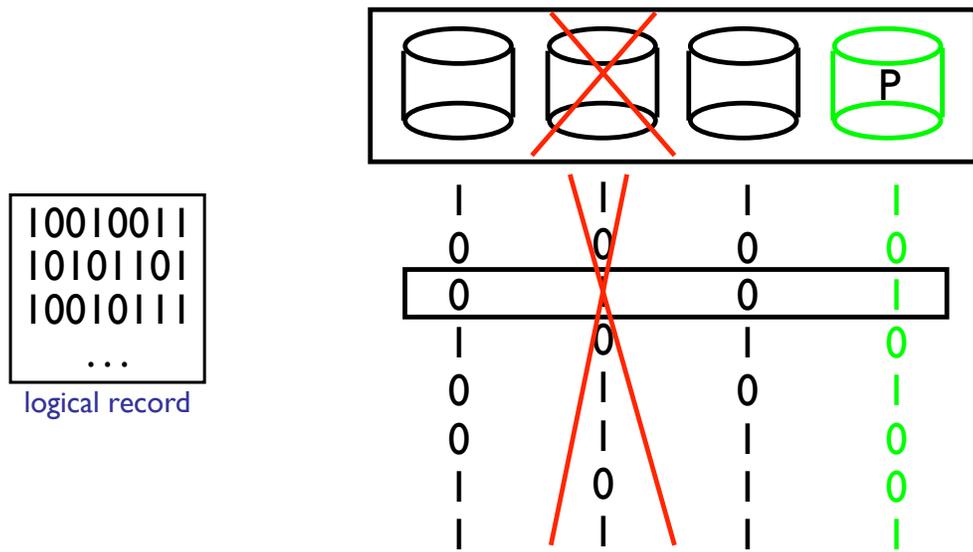
# RAID 0: Striping



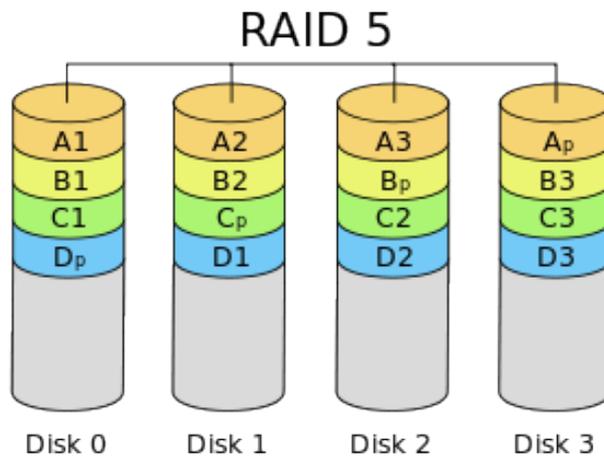
# RAID 1: Mirroring



# RAID 3: Parity Disk



# RAID 5: Distributed Parity



# RAID 1+0: Mirroring and Striping

