

### KeyValue

#### Blob Format

<keylen/4><valuelen/4><key><value>

#### Key Format

<rowlen/2><row><famlen/1><fam>  
<column><timestamp/8><type>

### Types

Put  
[DeleteRow]  
DeleteFamily  
DeleteColumn  
Delete

### StoreFile

SortedList<KeyValue>

Sort(row,family,column,ts,type)

RegionUniqueID = Creation Stamp

Represents Puts and Deletes that occurred over a Range of Time [ID, 0)

Deletes apply only to older StoreFiles

### StoreFile KeyValue Comparator

Sort(row,fam,column,ts,type)

#### General Sorting Order

Row in ascending lexic.

Family in ascending lexic.

Column in ascending lexic.

Timestamp in descending numerical

Type sorting described below

#### Type Sorting

Puts are sorted before all Deletes

DeleteFamily is first in Deletes

#### Delete Sorting

DeleteColumn/Delete are sorted by

Column in ascending lexic.

Timestamp is descending numerical

### Example StoreFile

(row,fam,col,ts,type,value)

(RowA, Fam, \*, 6, DeleteFamily, \*)

(RowA, Fam, ColA, 10, Put, W)

(RowA, Fam, ColA, 9, Put, X)

(RowA, Fam, ColA, 8, Put, Y)

(RowA, Fam, ColA, 7, Put, Z)

(RowA, Fam, ColA, 5, Delete, X)

(RowA, Fam, ColA, 4, DeleteCol, X)

(RowA, Fam, ColB, 10, Put, X)

(RowA, Fam, ColB, 8, Put, Y)

(RowA, Fam, ColB, 5, Delete, Y)

(RowB, Fam, ColA, 10, Put, X)

(RowB, Fam, ColA, 9, Put, Y)

⋮

### StoreFile Notes

The deletes in a particular StoreFile, as above, will never be relevant for the puts in that same StoreFile.

These deletes apply only to older StoreFiles.

As we process a StoreFile, we check it against any Deletes found in previous files. We also maintain a list of new Deletes we see and then merge it at the end of the StoreFile.

← Column Border

← Row Border