

Top 5 Things You Didn't Know About InMemory OLTP

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about In-Memory OLTP

- SQL Server In-Memory OLTP is a recent response to competitors' offerings
- In-Memory OLTP is like DBCC PINTABLE
- In-Memory Databases are new separate products
- You can use In-Memory OLTP in an existing SQL Server app with NO changes whatsoever
- Since tables are in memory, the data is not Durable or Highly Available – I will lose it after server crash

How Do You Use In-Memory OLTP?

What is In-Memory OLTP?

- SQL Server 2014 adds in-memory technology to boost performance of OLTP workloads

Memory optimized table and index structures

Native compilation of business logic in stored procedures

Latch- and lock-free data structures

Fully integrated into SQL Server

Create Table DDL

```
CREATE TABLE [Customer](  
    [CustomerID] INT NOT NULL  
    PRIMARY KEY NONCLUSTERED HASH WITH (BUCKET_COUNT = 1000000),  
    [Name] NVARCHAR(250) NOT NULL  
    INDEX [IName] HASH WITH (BUCKET_COUNT = 1000000),  
    [CustomerSince] DATETIME NULL  
)  
WITH (MEMORY_OPTIMIZED = ON, DURABILITY = SCHEMA_AND_DATA);
```

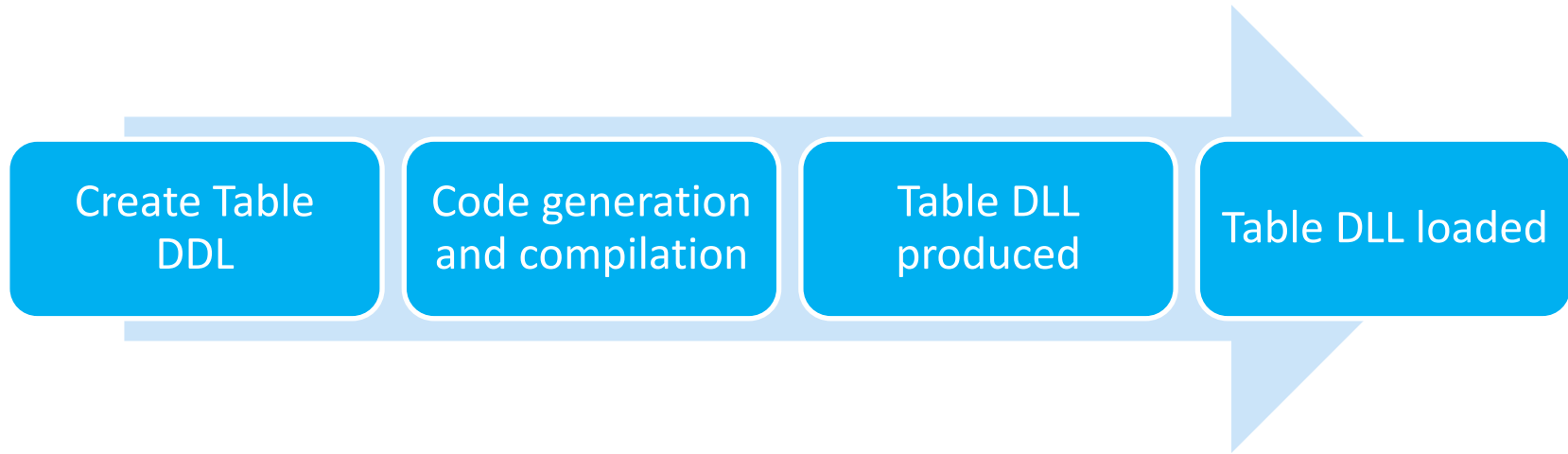
Hash Index

Secondary
Indexes are
specified inline

This table is memory
optimized

This table is durable

Memory Optimized Table Creation



UNDERSTANDING HASH INDEXES

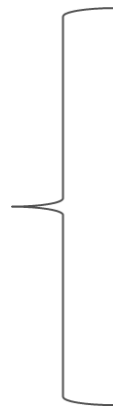


Hash Indexes

Hash index with (bucket_count=8):

Hash mapping:

Array of
8-byte
Memory
pointers

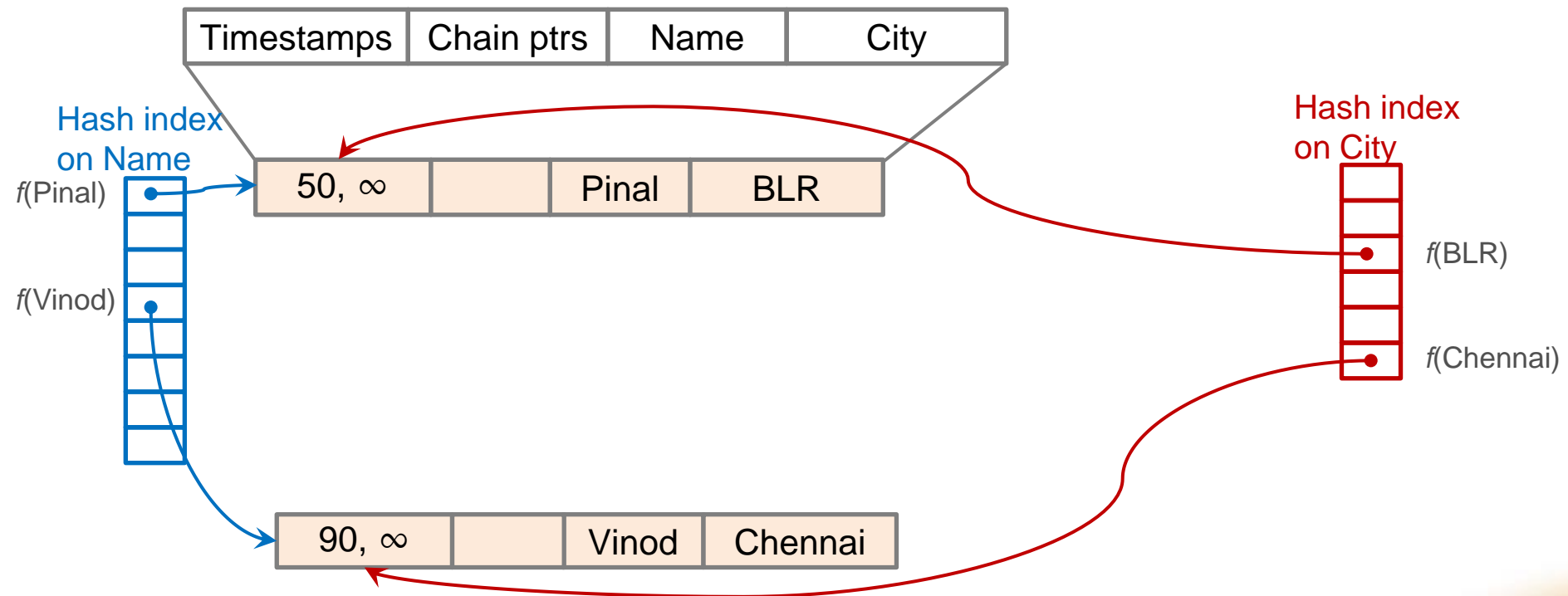


Hash function f :

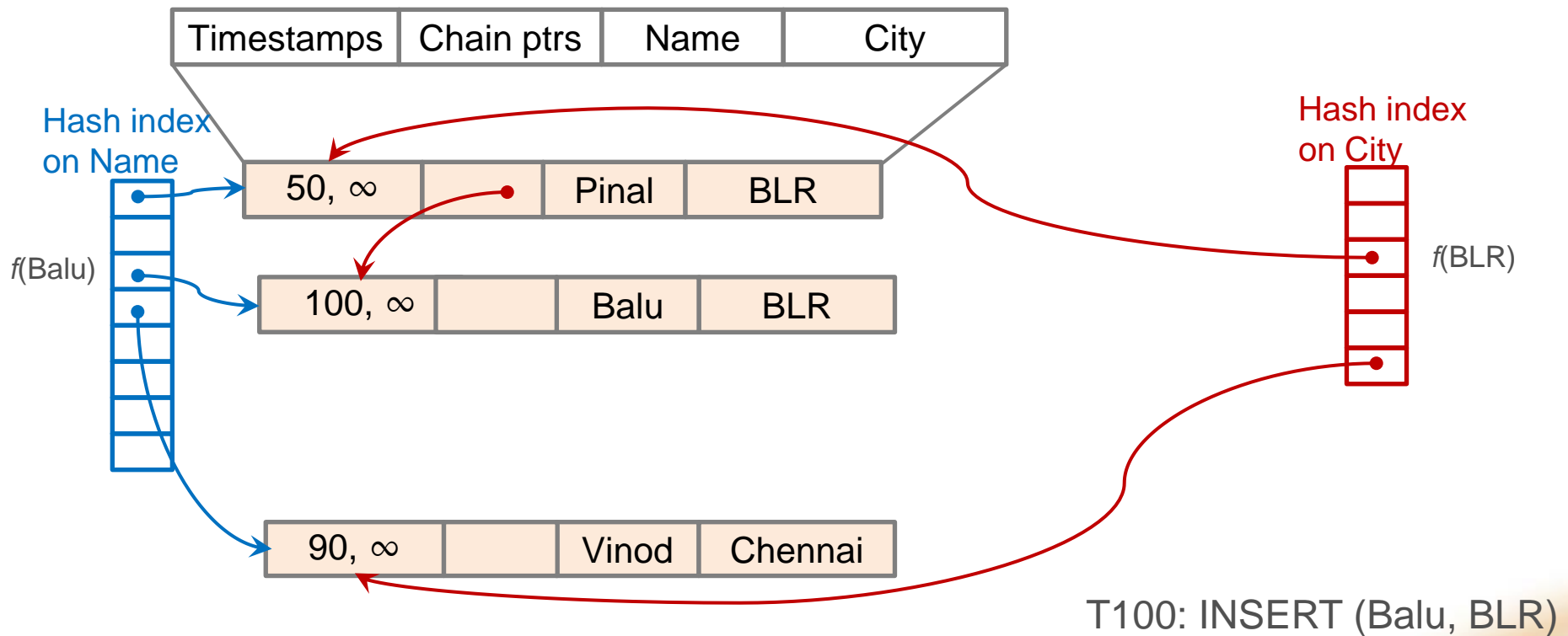
- Maps values to buckets
- Built into the system

Hash
Collisions

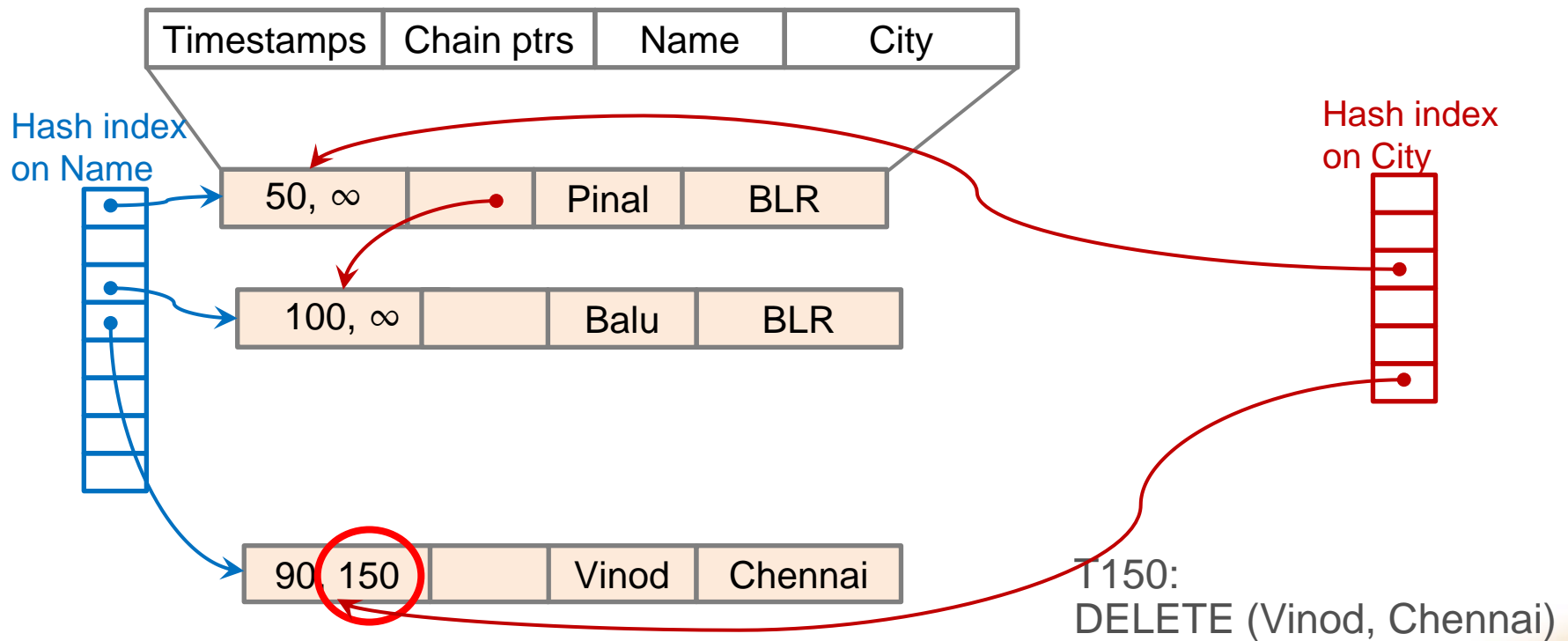
Memory Optimized Tables and Indexes



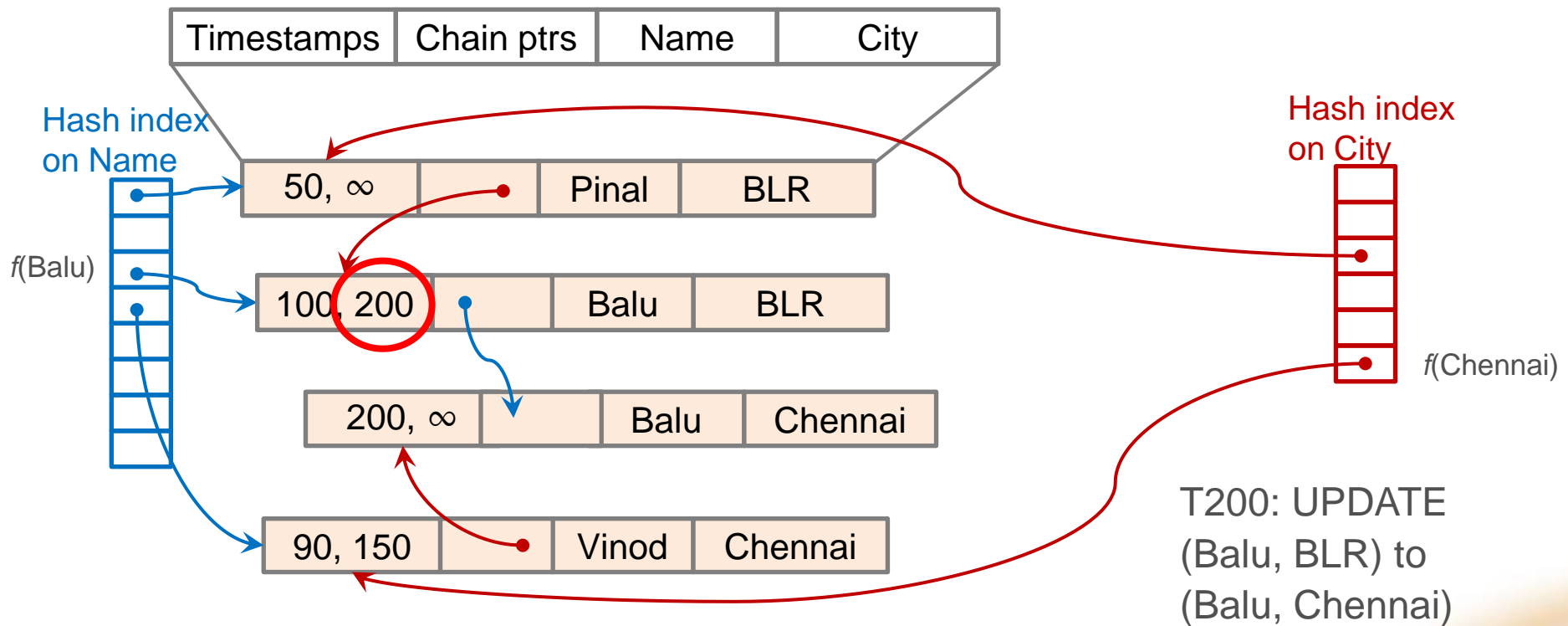
Memory Optimized Tables and Indexes



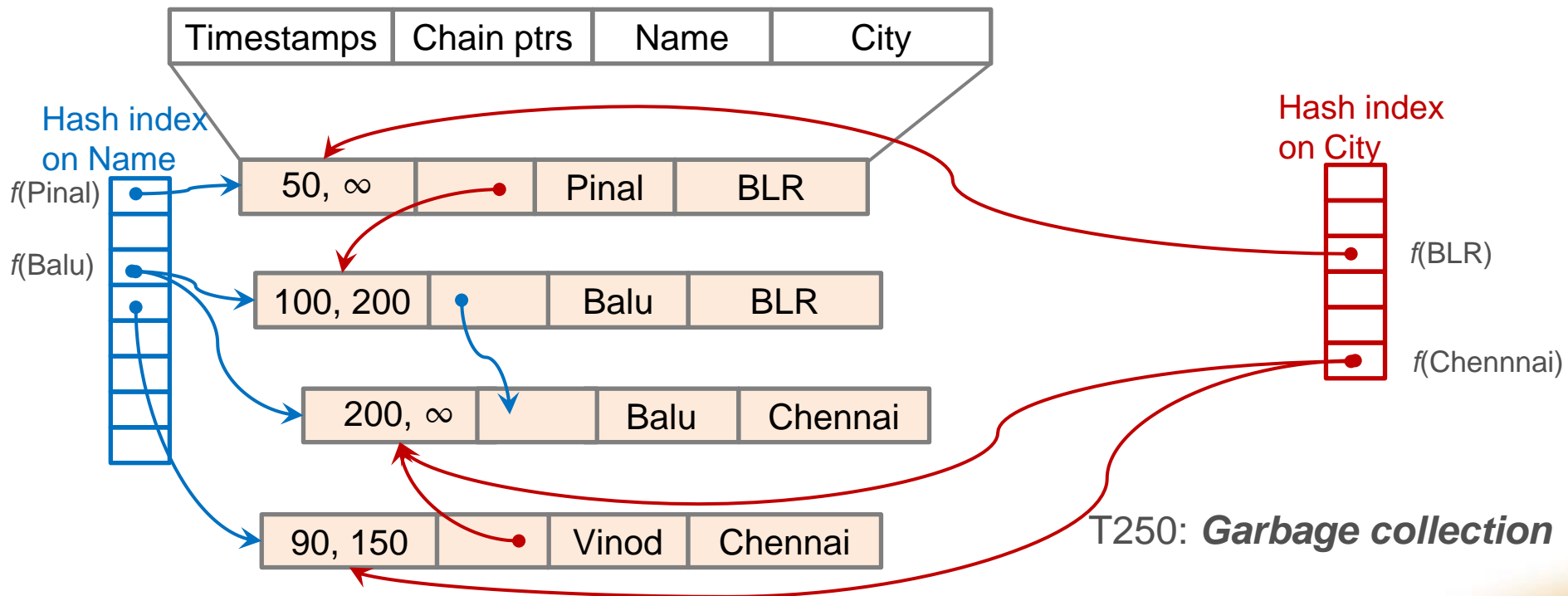
Memory Optimized Tables and Indexes



Memory Optimized Tables and Indexes



Memory Optimized Tables and Indexes



HOW INMEMORY PROCEDURES ARE CREATED !!!



Procedure Creation

CREATE PROC DDL

Query optimization

Code generation and compilation

Procedure DLL produced

Procedure DLL loaded

Backup for Memory-Optimized Tables

- Integrated with SQL Database Backup
 - Memory-Optimized file group is backed up as part SQL database backup
- Existing backup scripts work with minimal or no changes
- Transaction log backup includes memory-optimized log records transparently
- Not supported
 - Differential backup

QUESTION



Thank you!

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