Vitess

Getting Started with Vitess using Kubernetes

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Database on Ephemeral Containers?

- Storage on Ephemeral nodes?
- Availability when resources can vanish?
- Configuration and service discovery

Build a cloud Native Database

- Should scale with demand
- Should be handled like row crops
- Should be logically singular
- Should be resilient in the face of failure
- Automated management

What does it take to run On K8s

- databases
- vttablet's
- vtgate's
- lockserver

The Global Control Plane

- Global Lock server
- vtctld - Controller Daemon and User Interface
- vtctlclient - Command line client to run commands

[demo]

Cluster Architecture

- Keyspace
  - Shards
    - Master
      - Cell
    - Replica
      - [Cell]
- Cell
  - Keyspace
    - Shard
      - Replica

The First Keyspace

- Register the Keyspace
  - CreateKeyspace
- Register the Cell
  - AddCellInfo

vttablet

- Tablets serve a shard
- They have a specific type
  - Rdonly, replica, master
- They live in a cell
- They have a database backing them

Replication in Vitess

- Vitess uses the MySQL binlog
- vttablet consumes the binlog from other vttablets
- vitess uses this hijacking of the binlog to perform a number of tasks related to cluster management

[demo]

vtgate

- Presents a mysql interface (3306)
- Presents a custom grpc interface
- Can Talk cross shard
- Handles several activities related to sharding
  - Routes queries
  - Is responsible for some retries
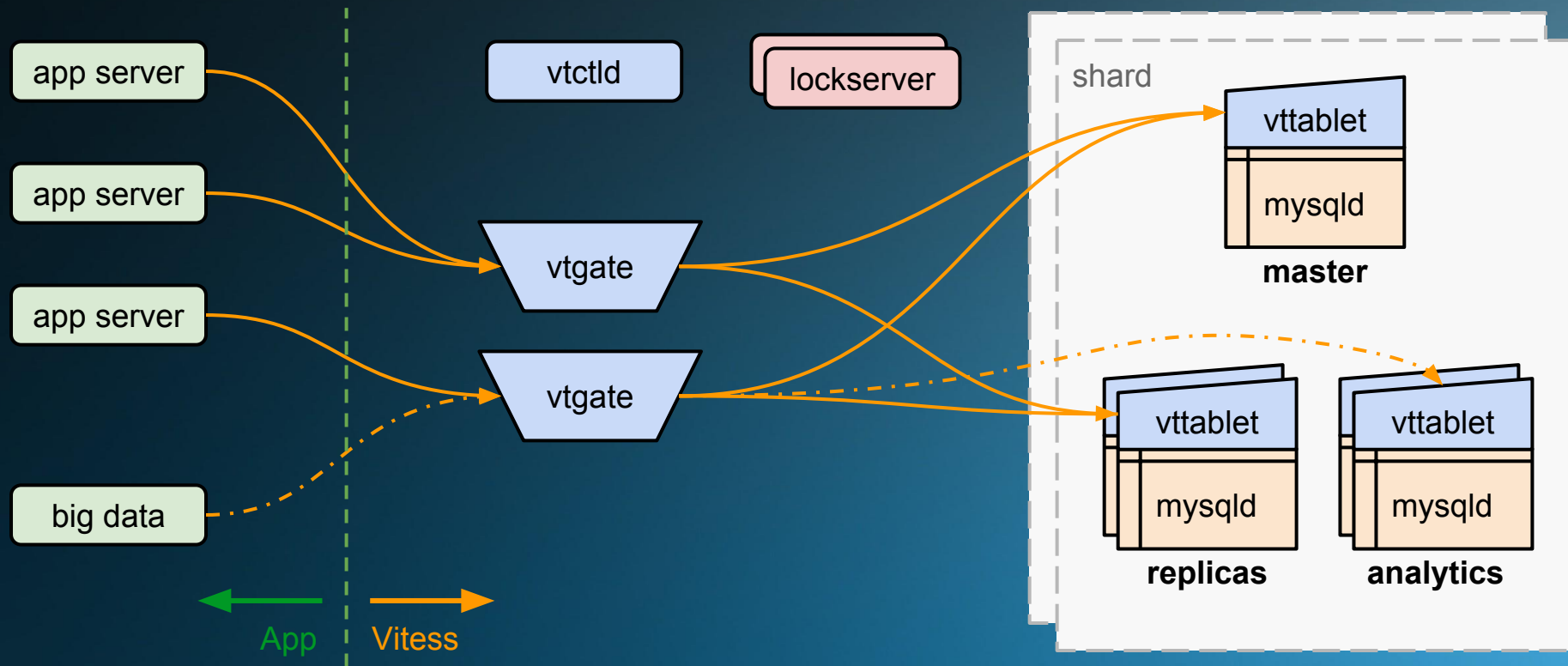 - Many other things

vtworker, Resharding, Schema Rollout

- Major workflow item is resharding
- All workflows should be done live
  - Vtgate knows how to handle the synchronous actions

Architecture

https://github.com/planetscale/k8s-demo

contact@planetscale.com

SaaS / Support / k8s Operator

VReplication

It's all coming together!

Sugu Sougoumarane
Cofounder & CTO, PlanetScale

Vitess Resharding

- Split Copy
- Filtered Replication
- Failover
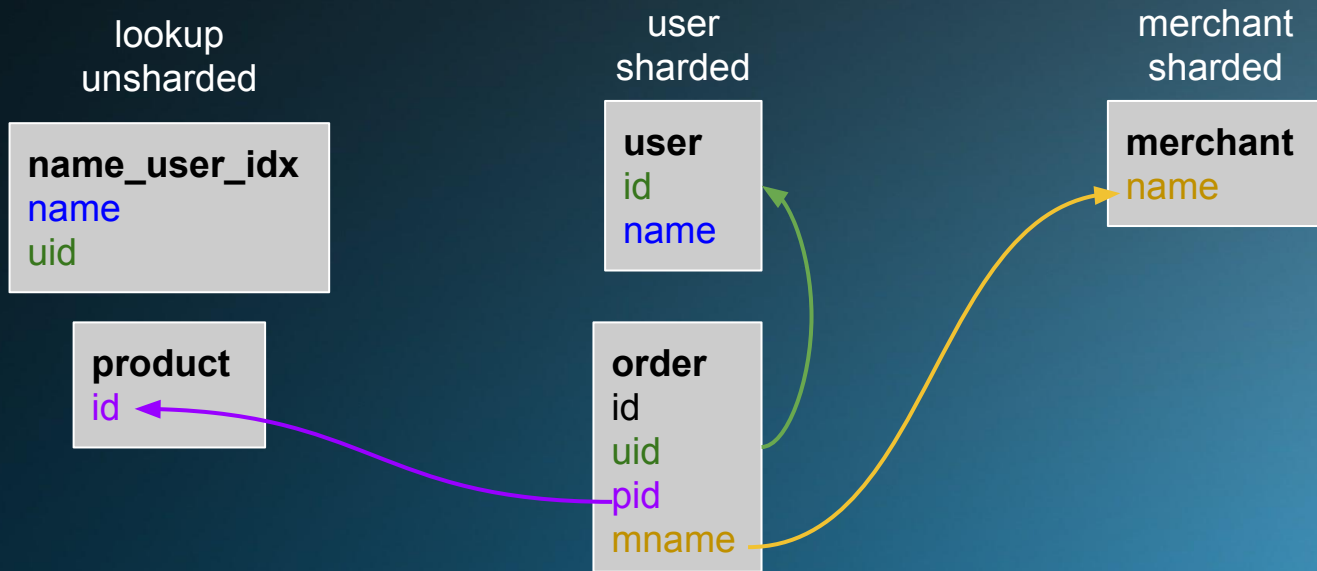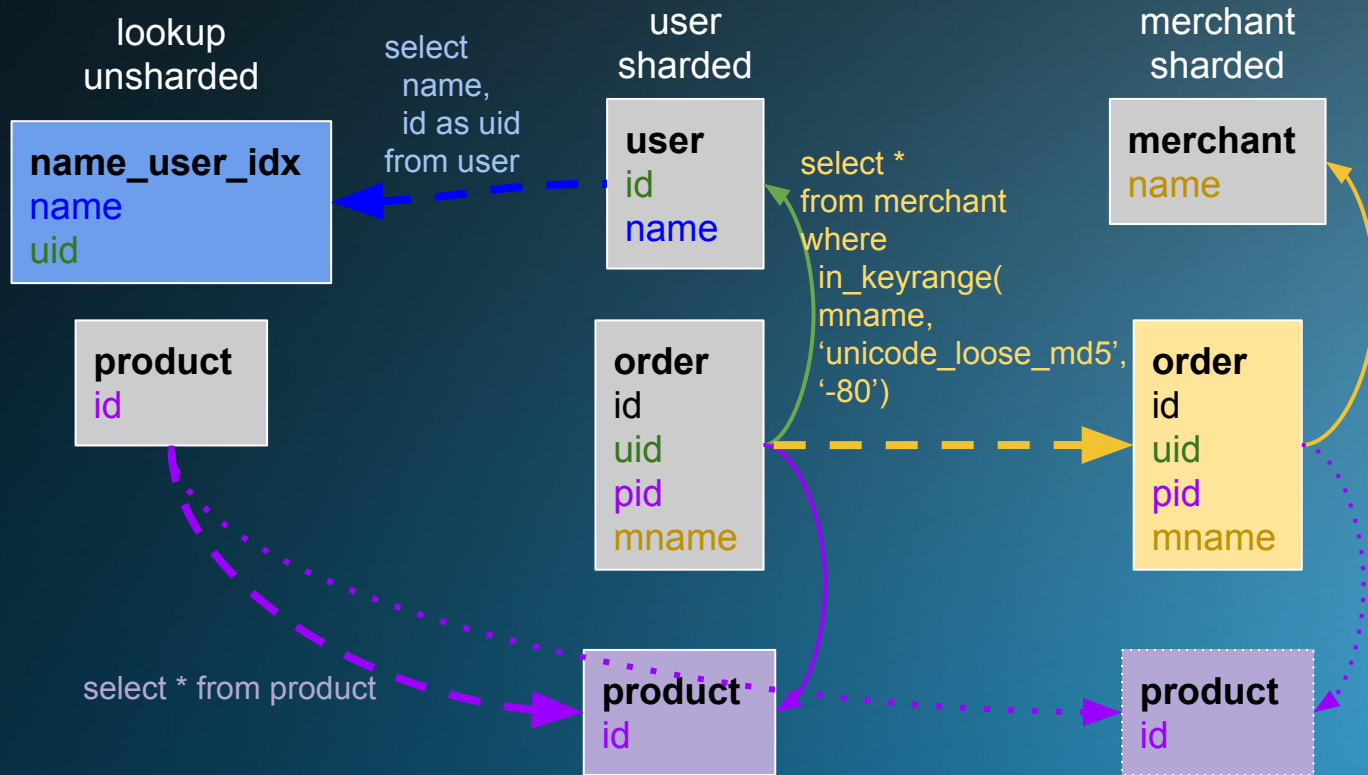- Well used and robust

VReplication

- Componentization of filtered replication
- Independent submodule
- Resharding continues to use it
- Can be used for new workflows

Demo

Demo

Roadmap

- VReplication
- Documentation
- Simplification
- Compatibility