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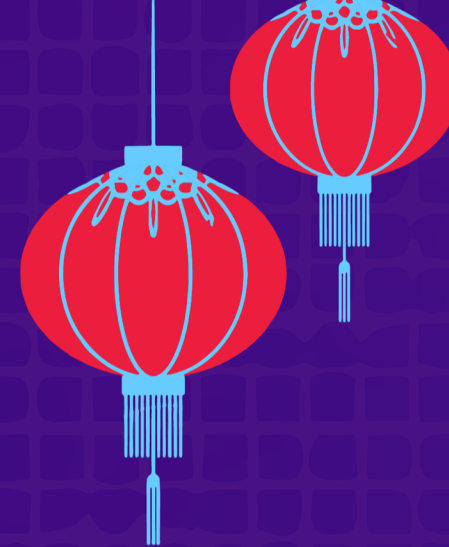
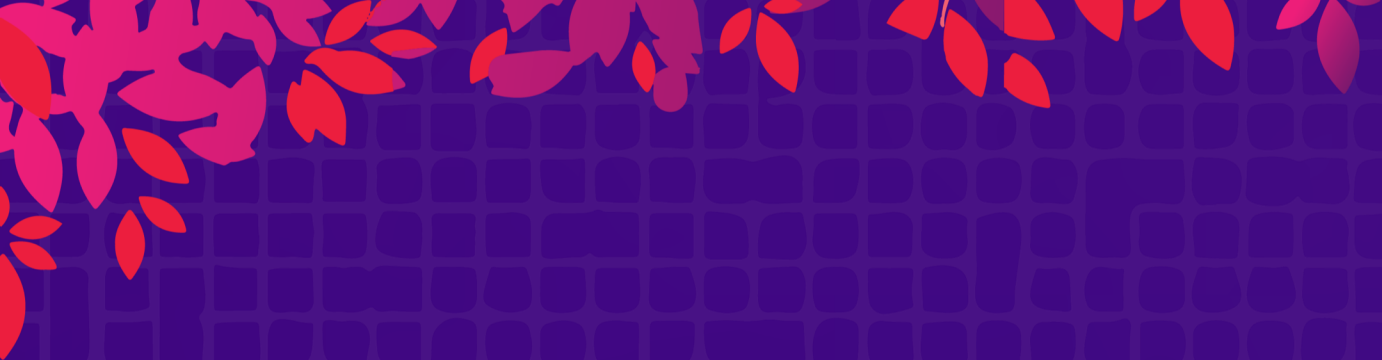


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Extending Deployment for Internet Financial Mission-Critical Scenarios

Ke Wu, Mengyi Zhou



CafeDeployment

- In-Place upgrade
 - Stable Pod IPs
- Safe and flexible deployment strategy
 - Canary deployment
 - Rolling upgrade in batches
- High availability in financial scenarios
 - Active-Active replication
 - Graceful shutdown of Pods

CafeDeployment



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Features	CafeDeployment	Deployment
In-place upgrade	Y	N
Canary	Y	N
Rolling upgrade strategy	Using Batches	Using max surge
Scaling strategy	Using Batches	N
Graceful shutdown of Pods	Y	N
Controller revision	Y	Y
Pod scheduling policy	Deploy unit spread Node affinity	Node affinity

In-Place Upgrade



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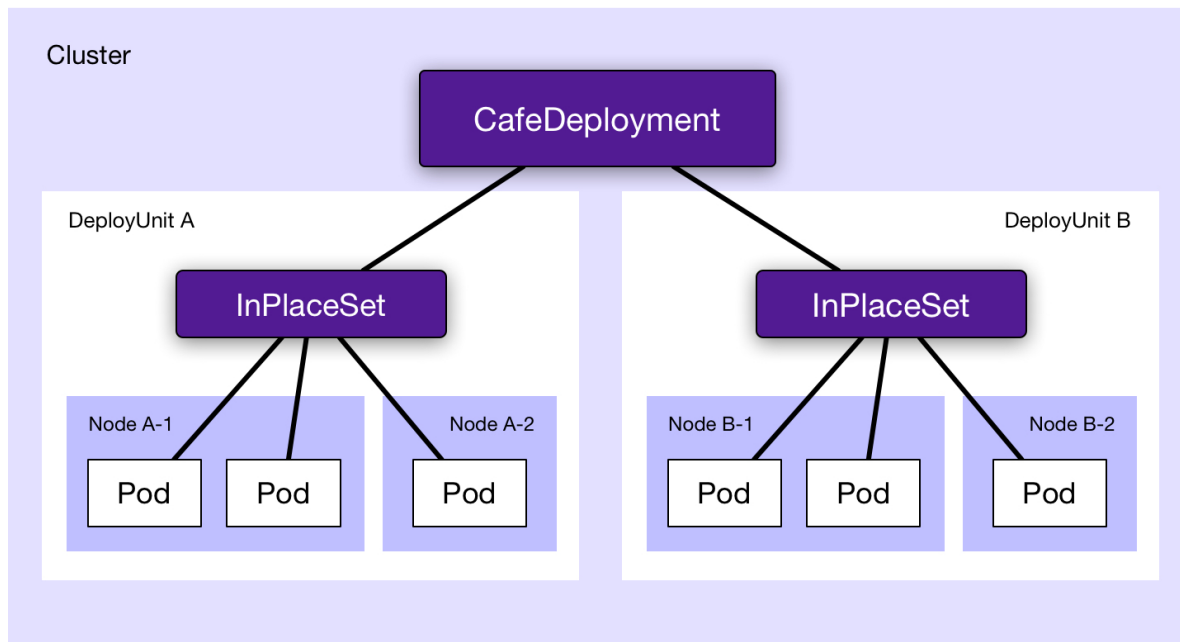


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```
kind: CafeDeployment
spec:
  podSetType: InPlaceSet
  replicas: 6
  matchLabels:
    instance: productpage
    name: bookinfo
  ...
  template:
    ...
  topology:
    unitType: Cell
    values:
      - CellA
      - CellB
    unitReplicas:
      CellA: 3
```

```
kind: InPlaceSet
spec:
  minReadySeconds: 30
  replicas: 3
  selector:
    matchLabels:
      instance: productpage
      name: bookinfo
  deployUnit: CellB
  template:
    ...
```



Deployment Strategy



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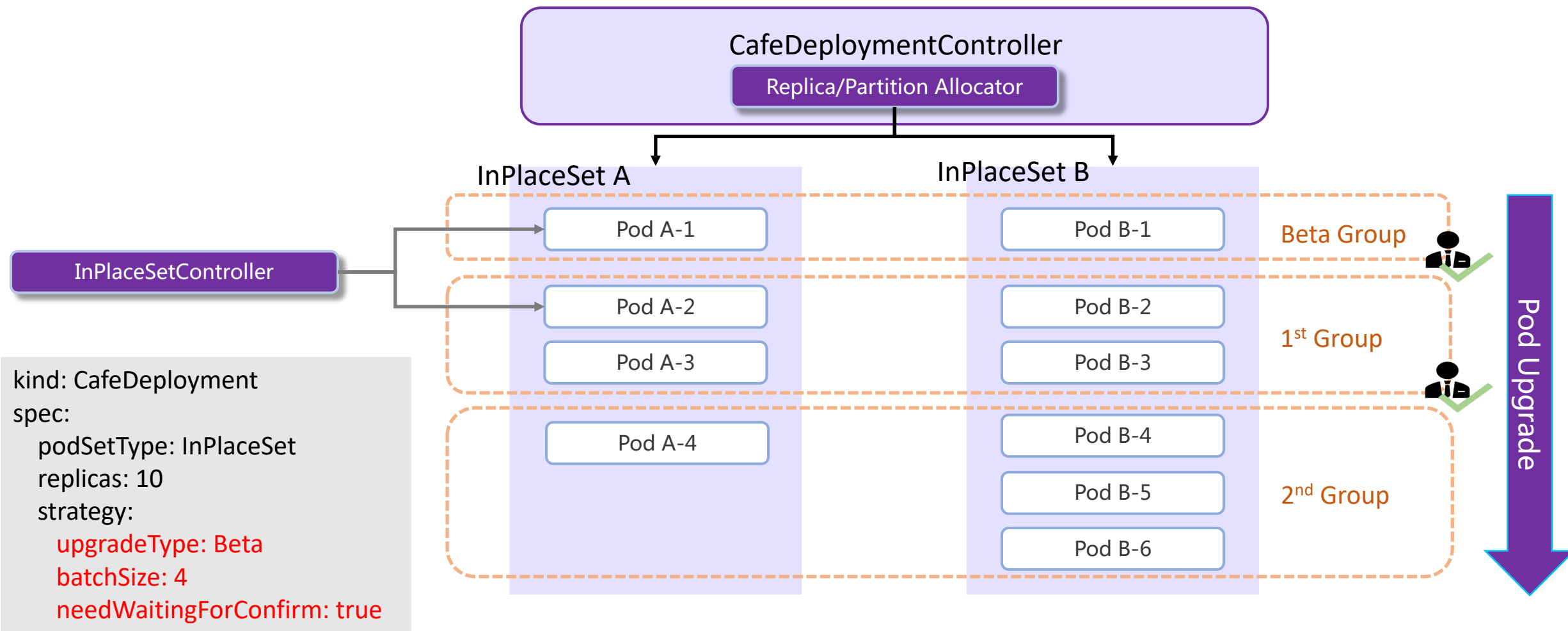


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Rescheduler



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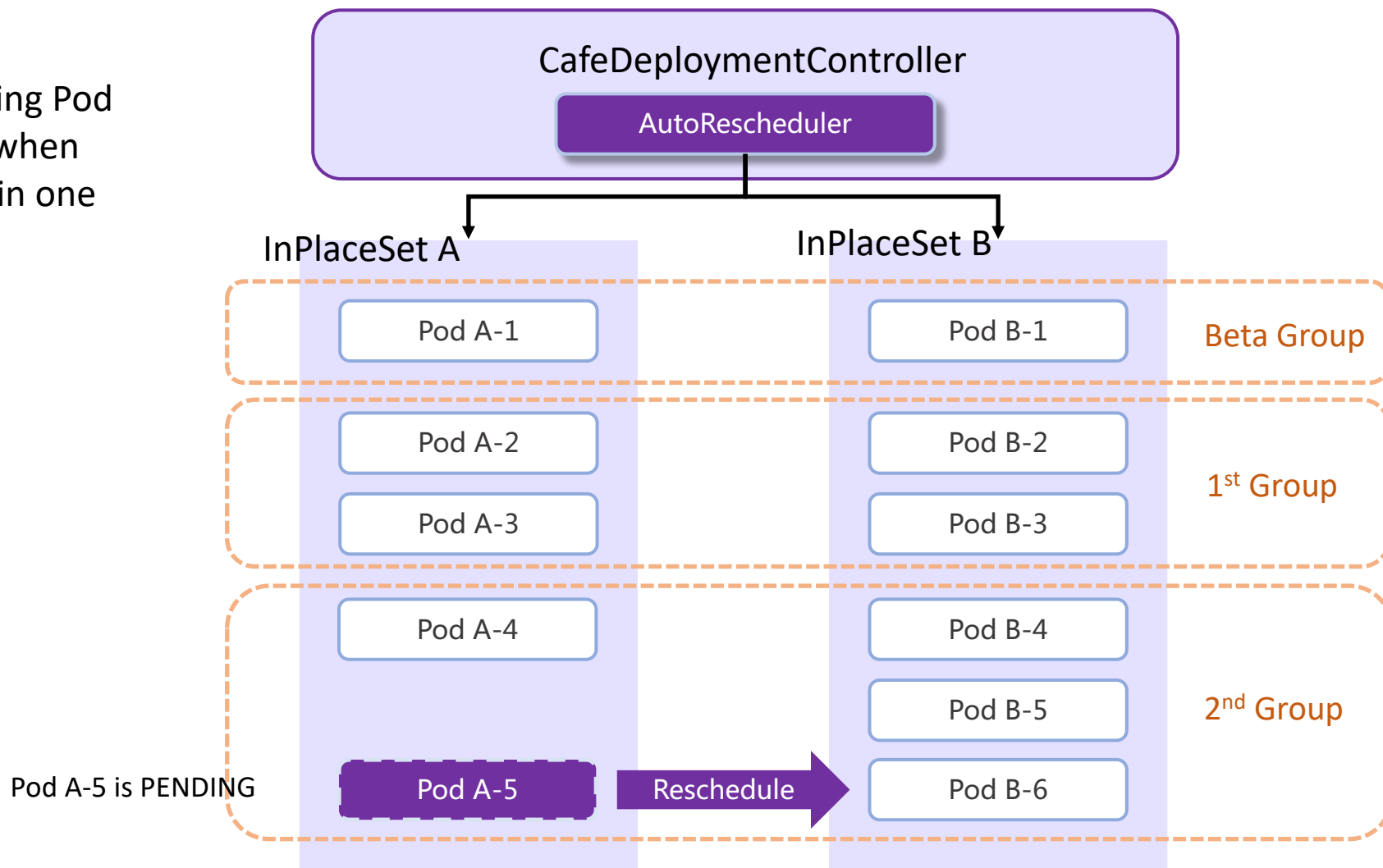
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- Enable auto-rescheduling Pod to another InPlaceSet when out of node resources in one deploy unit.



Multi Workload Adapted



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CafeDeploymentController

Replica/Partition Allocator

ReplicaSetController

```
kind: CafeDeployment
spec:
  podSetType: ReplicaSet
  replicas: 10
  strategy:
    upgradeType: Beta
    batchSize: 4
    needWaitingForConfirm: true
```

RSA1

RS A2

RS B1

RS B2

Pod A1-1

Pod A2-1

Pod B1-1

Pod B2-1

Pod A1-2

Pod A2-2

Pod B1-2

Pod B2-2

Pod A1-3

Pod A2-3

Pod B1-3

Pod B2-3

Pod A1-4

Pod A2-4

Pod B1-4

Pod B2-4

Pod A1-5

Pod A2-5

Pod B1-5

Pod B2-5

Beta Group

1st Group

2nd Group

Deploy unit

Deploy unit

High Availability



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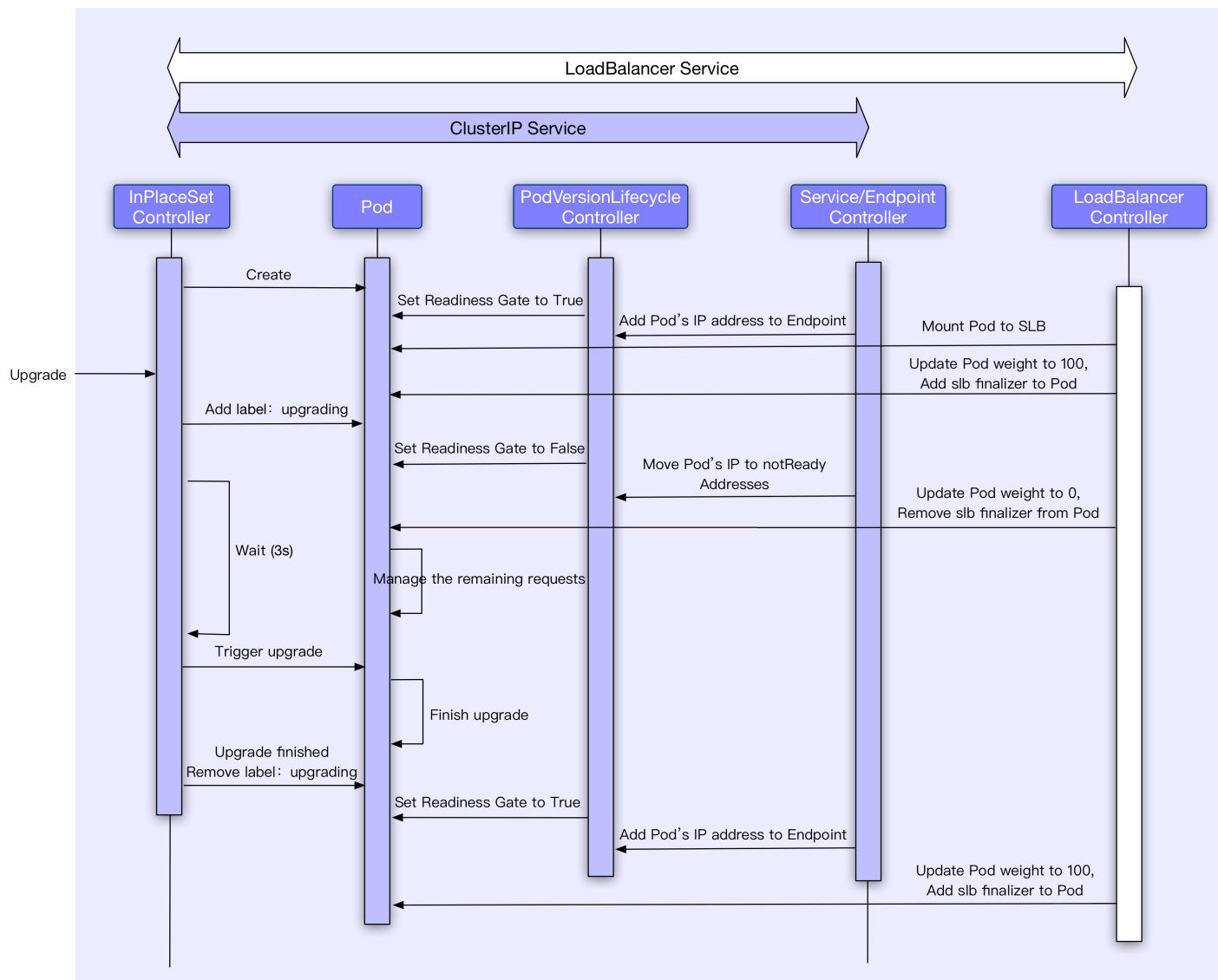
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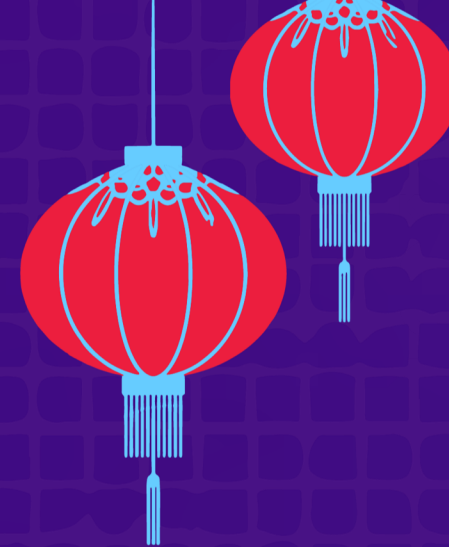


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- Even spread of Pods across deploy units
- Strict readiness management during upgrade
- Third-party controller cooperation





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Now it's DEMO time!

