



Local Cloud Data Management with InterBase and AWS

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(Replay, slides, and links)





What is Local Cloud?



There is no
“Cloud”

It's just somebody
else's *computer*.



The Cloud
is a *server*
someone else
manages for you!

Why do you take
your car to a
mechanic?



Cloud Benefits


Effectively outsourcing the server platform management to specialists.

Giving you economies of scale for cost savings,


Reducing internal workload and effort,

While leveraging the expertise of specialists.



A large, fluffy white cloud with soft, billowing edges dominates the upper half of the frame. It is set against a clear, vibrant blue sky. The cloud's texture is detailed with various shades of white and light blue, suggesting depth and volume. The overall composition is clean and minimalist, with the cloud as the central visual element.

Make large-scale
computing power
accessible
by anyone.



Cut costs and enable
focus on core business
instead of being impeded
by IT obstacles.



**Scalability,
Elasticity, &
Security**

**Cost,
Effort,
& Risk**

A photograph of a brick wall densely packed with surveillance cameras. The cameras are arranged in a grid-like pattern, with some black and some silver. Two women are standing at the bottom of the frame, looking up at the cameras. One woman is wearing a black jacket and the other a brown jacket. A dark door is visible on the right side of the wall.

Cloud Drawbacks

Reduced control

Privacy issues

Security concerns

Jurisdiction complications



Local / Private Cloud

The benefits of cloud, but on-premises and fully under your control.

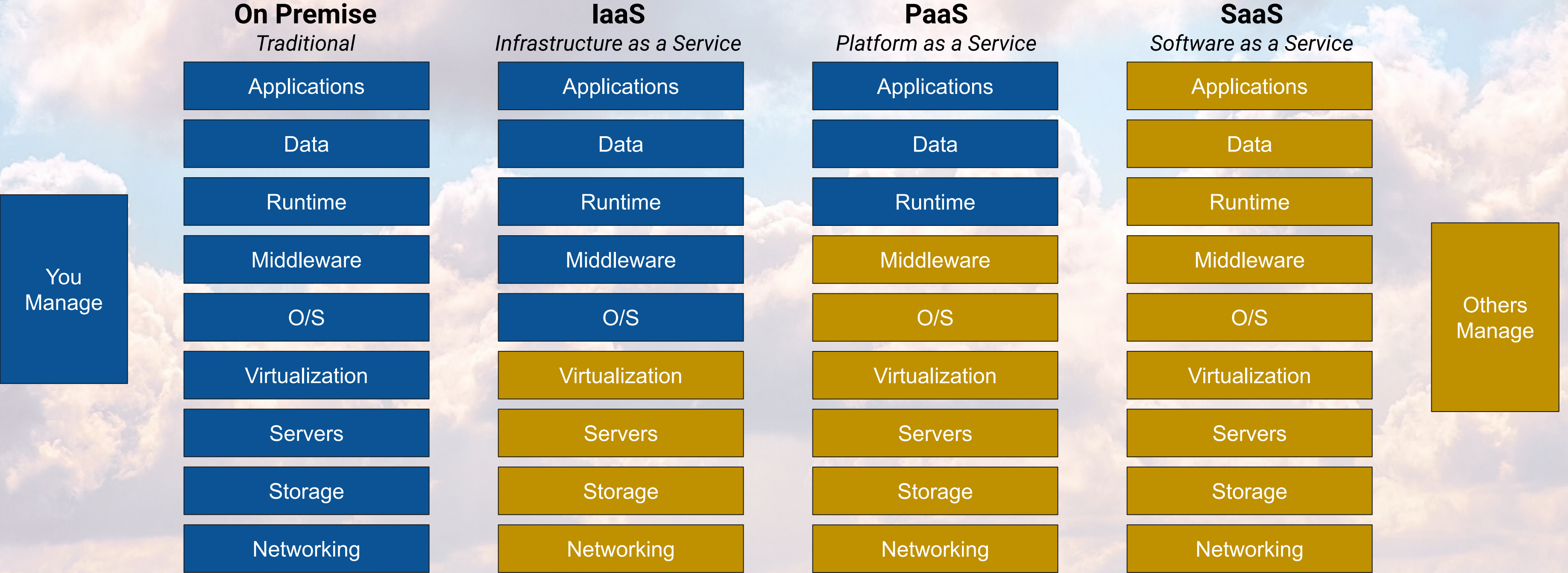
Hybrid Cloud

Combining the private and public cloud gaining the benefits of both.
Operating locally and in the cloud.



Cloud Deployment Models

Public, Private, Hybrid Clouds - On Premise, IaaS, PaaS, or SaaS



What is Amazon Web Services?

- Most comprehensive and broadly adopted cloud platform
- Provides on-demand cloud computing platforms and APIs
- Cloud computing web services
 - Provides a variety of basic abstract technical infrastructure and distributed computing building blocks and tools.
- Billed using metered pay-as-you-go basis, based on
 - Hardware
 - Operating system
 - Software
 - Networking features
 - API calls
- Implemented at server farms throughout the world

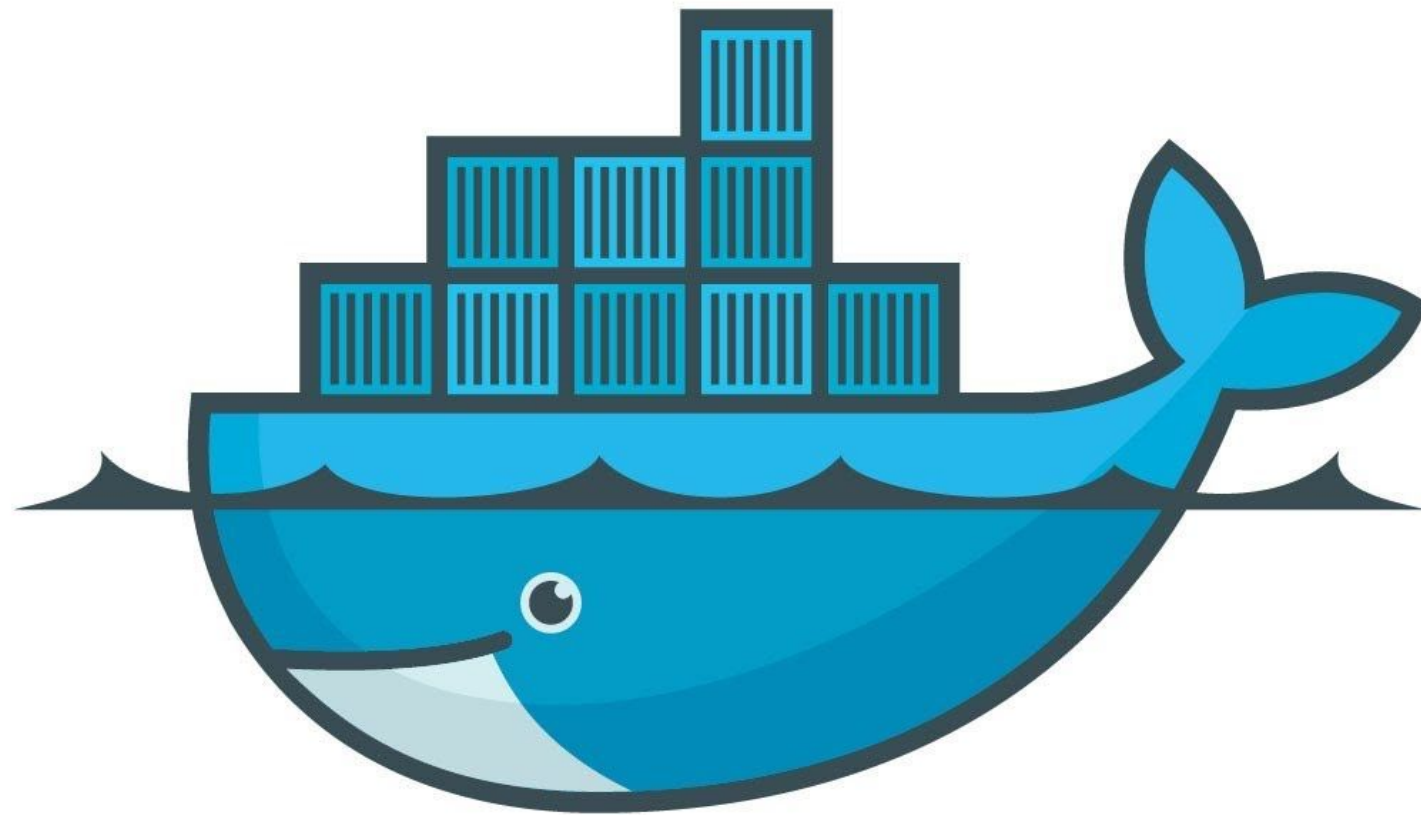


Amazon Elastic Compute Cloud (Amazon EC2)

- Secure and resizable compute capacity.
- Access reliable, scalable infrastructure on demand. Scale capacity within minutes with SLA commitment of 99.99% availability.
- Provide secure compute for your applications. Security is built into the foundation of Amazon EC2 with the AWS Nitro System.
- Optimize performance and cost with flexible options like AWS Graviton-based instances, Amazon EC2 Spot instances, and AWS Savings Plans.
- Migrate and build apps with ease using AWS Migration Tools, AWS Managed Services, or Amazon Lightsail. Learn how AWS can help.

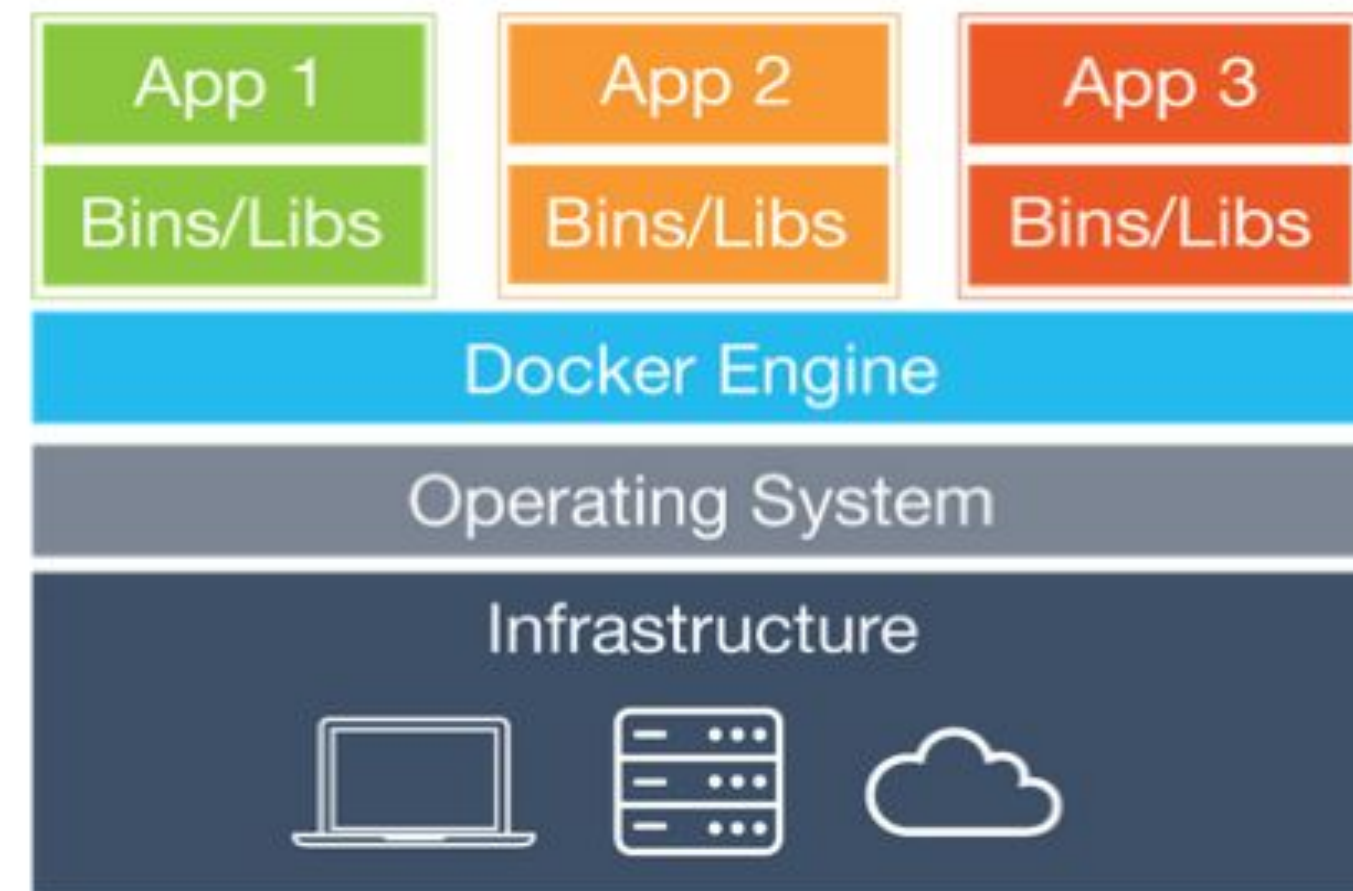
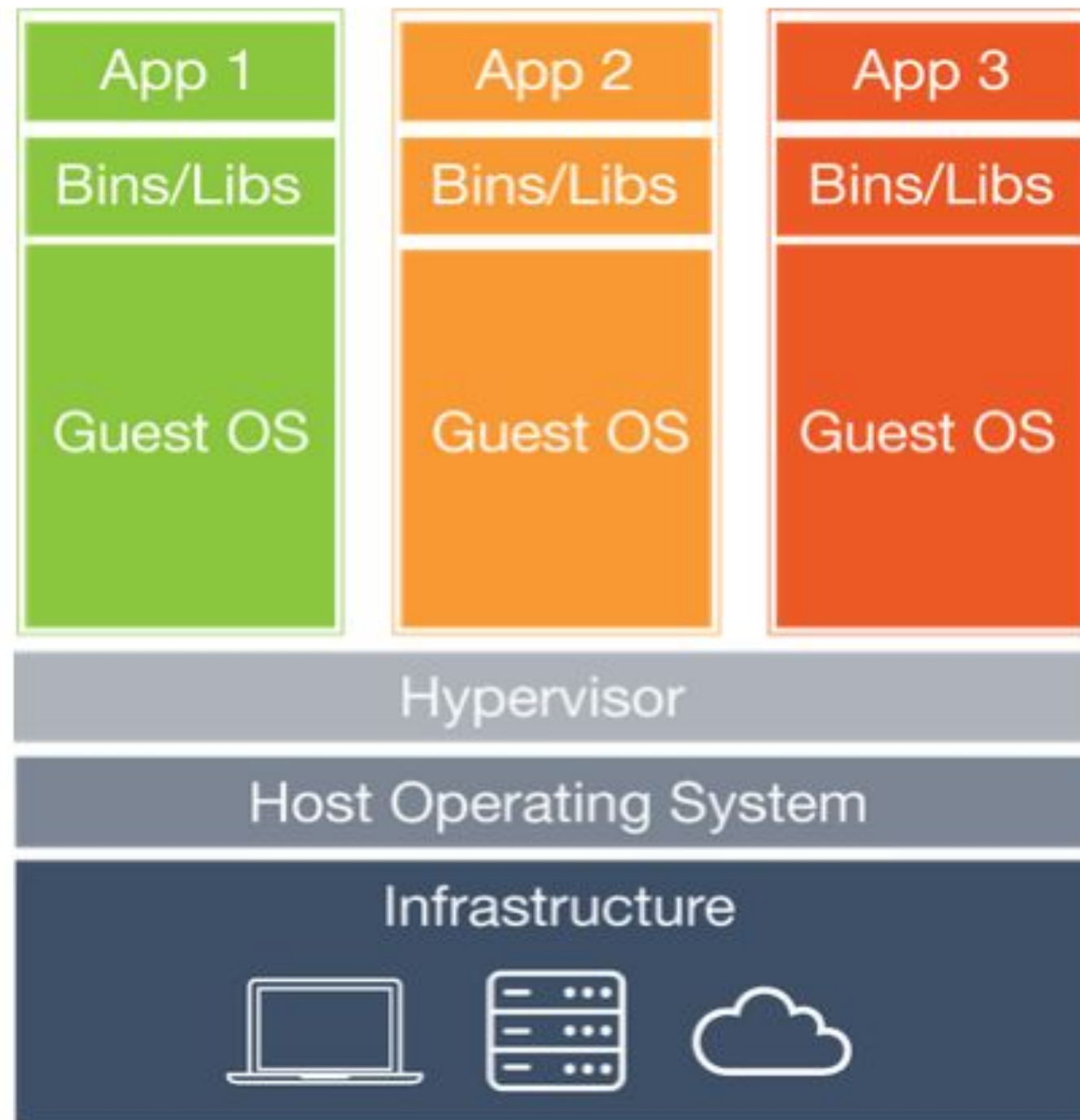


EC2 Hosting Docker Containers



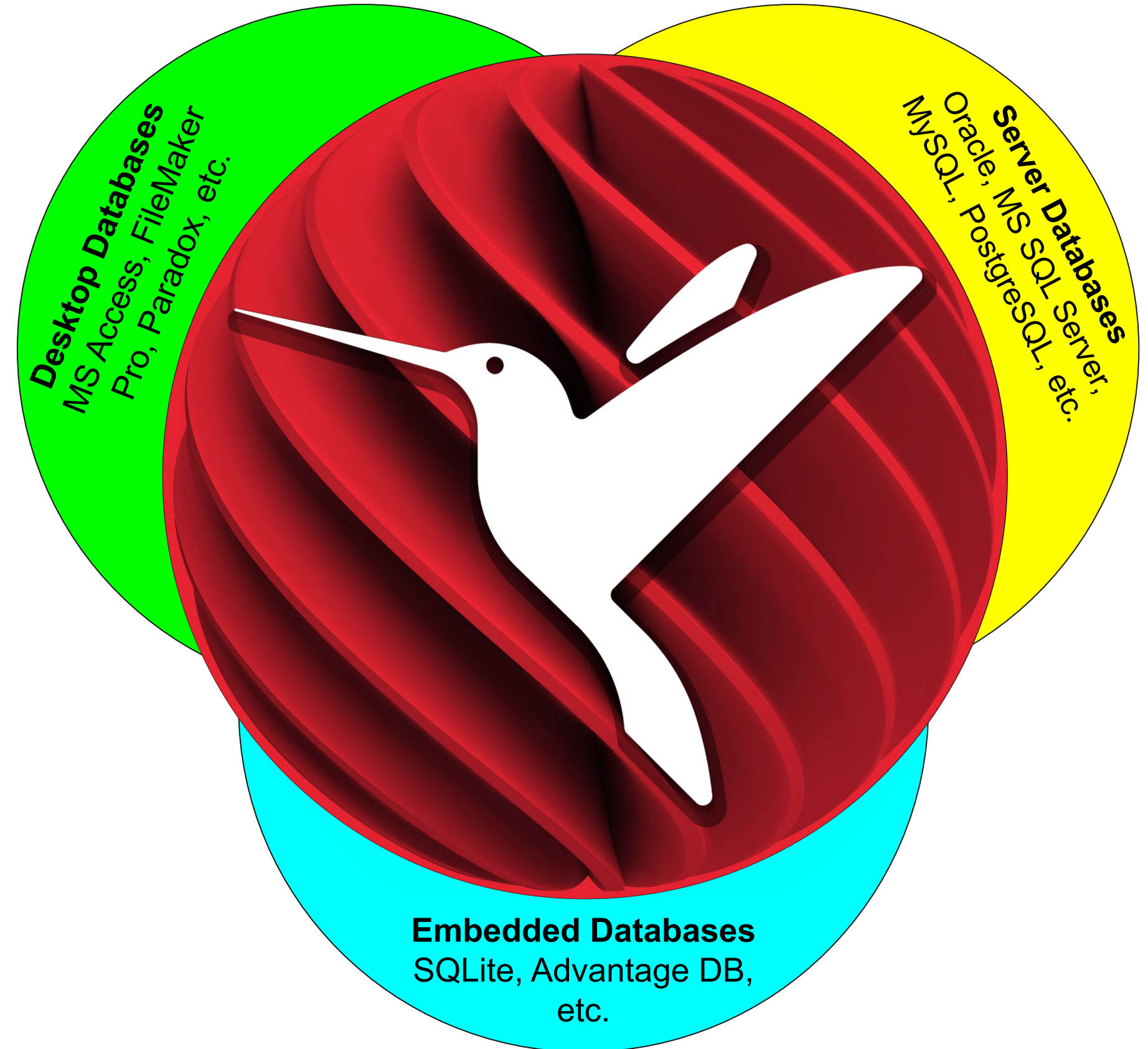
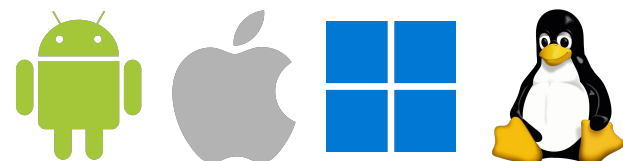
“Isn't that the same as a Virtual Machine?”

VM's include the Guest OS



InterBase Overview

- Use cases
 - Desktop database
 - Server database
 - Embedded database
 - Cloud certified
- Best in Class Features
 - Change views
 - Strong encryption and security
 - Ultra fast, self tuning, & small footprint
 - Journaling & incremental backups
- Platforms
 - Windows, Linux, Android, macOS, & iOS





Embed, Deploy, Relax!

InterBase installations are found everywhere; Trusted for solid, reliable use in mission-critical contexts such as patient management, railways, medical labs, multi-national POS, CRM, and emergency response systems. InterBase runs non-stop, round-the-clock. Lightweight, yet rock-solid.



Feature rich database for Enterprise and IoT

InterBase contains award winning technologies, build with ISV business solutions and the IoT age in mind.

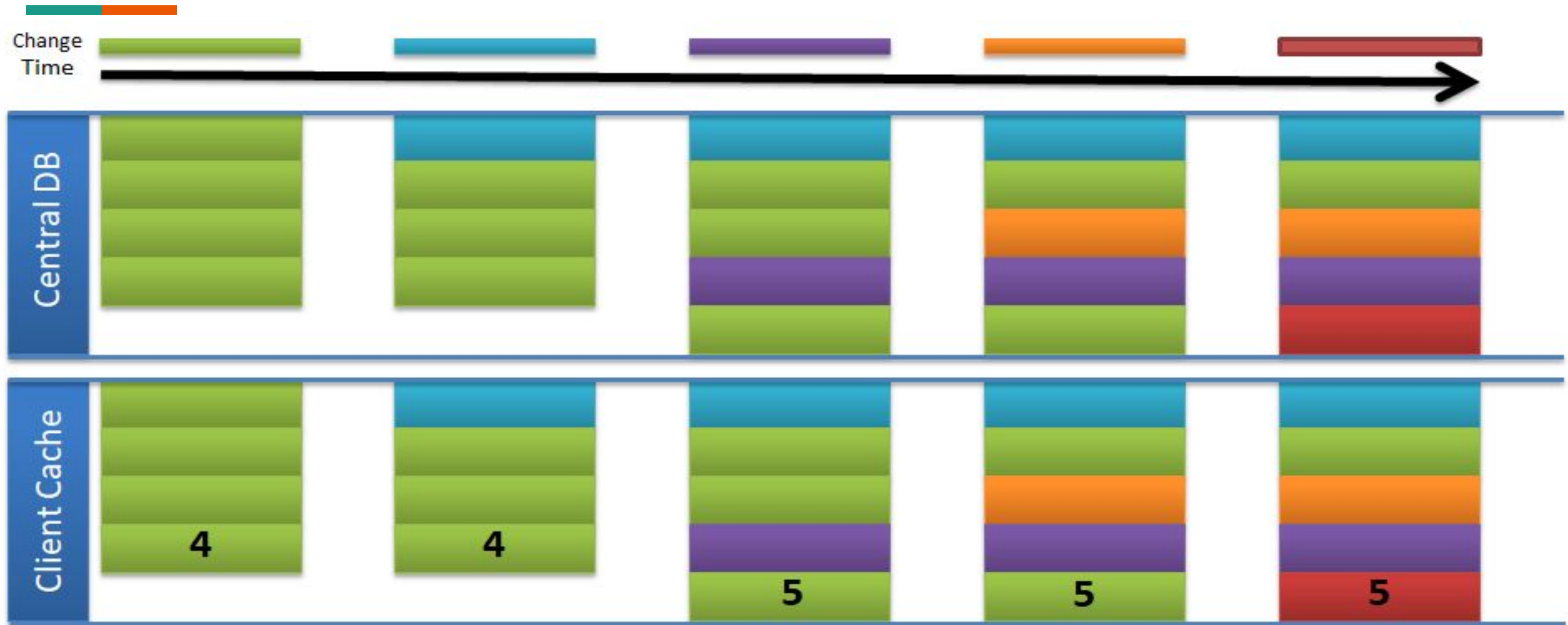
- Admin Free
- Change Views
(SQL based change tracking)
- Transparent Data Encryption
- Journaling and Point in Time Recovery
- Disaster Recovery

IOTA

Internet of Things Awards
Winner
Most Innovative Use of Data

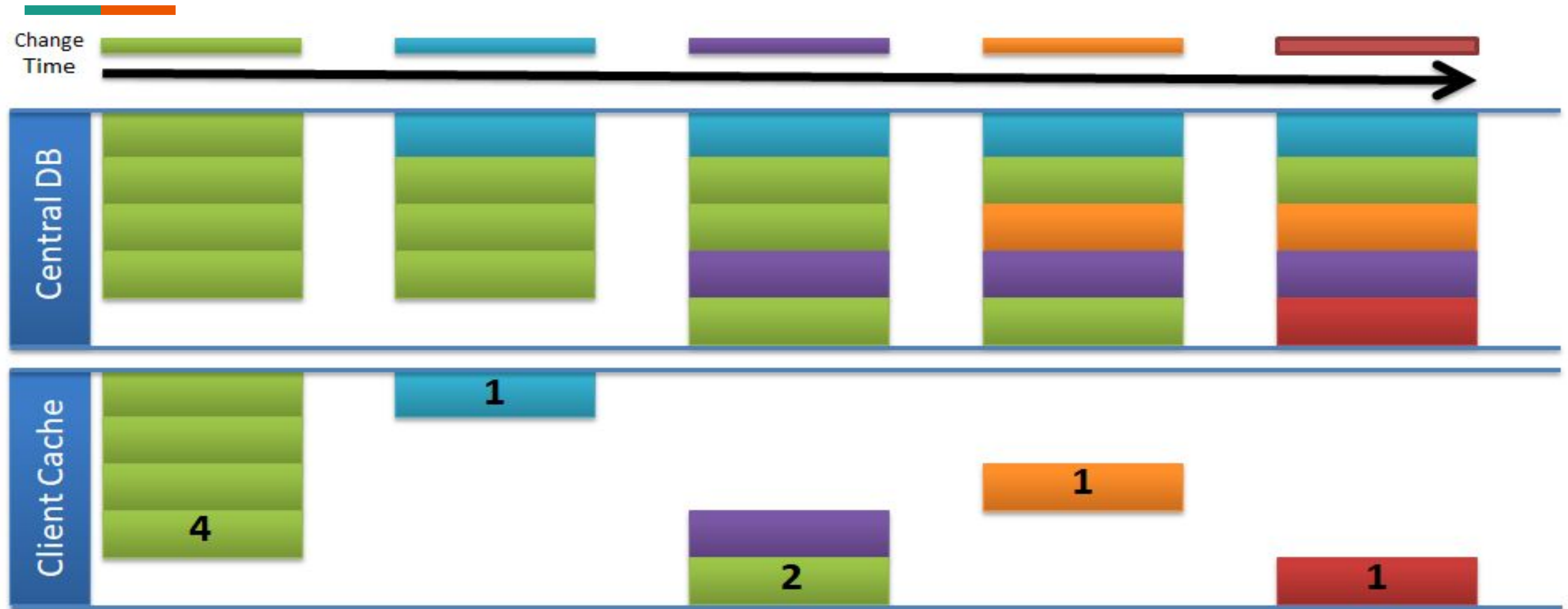


Traditional Data Briefcase



Virtual field packets sent: $4 + 4 + 5 + 5 + 5 = 23$

Using Change Views



Virtual field packets sent: $4 + 1 + 2 + 1 + 1 = 9$

Create a Subscription



```
CREATE SUBSCRIPTION sub_ceo_multidevice
ON employee FOR row (INSERT, UPDATE, DELETE),
    customer FOR row (INSERT, UPDATE, DELETE),
    sales FOR row (UPDATE),
    department (location) FOR row (UPDATE)
DESCRIPTION 'multiple change subscription for all CEO devices'
```


Grant & Revoke Subscription Access



GRANT and REVOKE commands similar to Privileges for accessing tables

```
GRANT SUBSCRIBE ON SUBSCRIPTION <subscription_name> TO  
<user_name>
```

```
REVOKE SUBSCRIBE ON SUBSCRIPTION <subscription_name> FROM  
<user_name>
```


Using Subscription



```
SET SUBSCRIPTION sub_ceo_multidevice AT 'tablet' ACTIVE;
```

```
/* Modify DEPARTMENT.location='Austin, TX' for department 180 */
```

```
SELECT DEPARTMENT, LOCATION FROM DEPARTMENT WHERE DEPT_NO=180;
```

```
UPDATE DEPARTMENT SET LOCATION='Austin, TX' WHERE DEPT_NO=180;
```

```
SELECT DEPARTMENT, LOCATION FROM DEPARTMENT WHERE DEPT_NO=180;
```

```
SET SUBSCRIPTION sub_ceo_multidevice AT 'tablet' INACTIVE;
```

```
COMMIT;
```


InterBase on Docker

- Embarcadero has an official Docker container image
 - hub.docker.com/r/radstudio/pa-radserver-ib
- Also includes PA Server and RAD Server
- There are other *unofficial* InterBase container images
- Or you can make your own...
 - github.com/Embarcadero/pa-radserver-ib-docker





Demonstration

More Information

Replay, Links, Slides

blogs.embarcadero.com/?p=138413

Amazon EC2 + Docker

docs.aws.amazon.com/AmazonECS/latest/userguide/docker-basics.html

InterBase Change Views

docwiki.embarcadero.com/InterBase/2020/en/Change_Views

Official InterBase Docker container image

hub.docker.com/r/radstudio/pa-radserver-ib

Dockerfile source for image

github.com/Embarcadero/pa-radserver-ib-docker

