

# SaaS Provisioning & Licensing

Building an efficient System

Sentinel™ Cloud Services

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**Sentinel**CLOUD

# Agenda

**Who are we?**

**What will we be talking about?**

**Cloud – What is so different about it?**  
– Design criteria

**The Framework**

**Details**

**Lessons learnt**

# SafeNet Fact Sheet

The largest company exclusively focused on the protection of high-value information assets.

Protecting information from its creation throughout its lifecycle.

- **Founded:** 1983
- **Ownership:** private
- **Global Footprint** with more than 25,000 customers in 100 countries
- **Employees:** 1550 in 25 countries
- **Recognized** Security Technology leadership, over **550 security engineers** strong
- **Accredited** with products certified to the highest security standards

# Sentinel<sup>®</sup>

*Flexible Solutions for Evolving Business*

for your **Business** | for your **Customers** | for your **Budget** | for your **Future**

- ✓ Embrace emerging business models to **reach valuable new markets**
- ✓ Protect against reverse engineering to **maintain competitive advantage**
- ✓ Prevent unauthorized use and distribution to **safeguard existing revenue**
- ✓ Automate operational tasks to **save time, minimize errors, and reduce costs**
- ✓ Simplify reporting and compliance to **improve partner and end-user relations**

**Sentinel** HASP™

# Parallels



**On-Premise**

Copy Protection

Products

Orders / Entitlement

Licensing

Tracking

Reporting

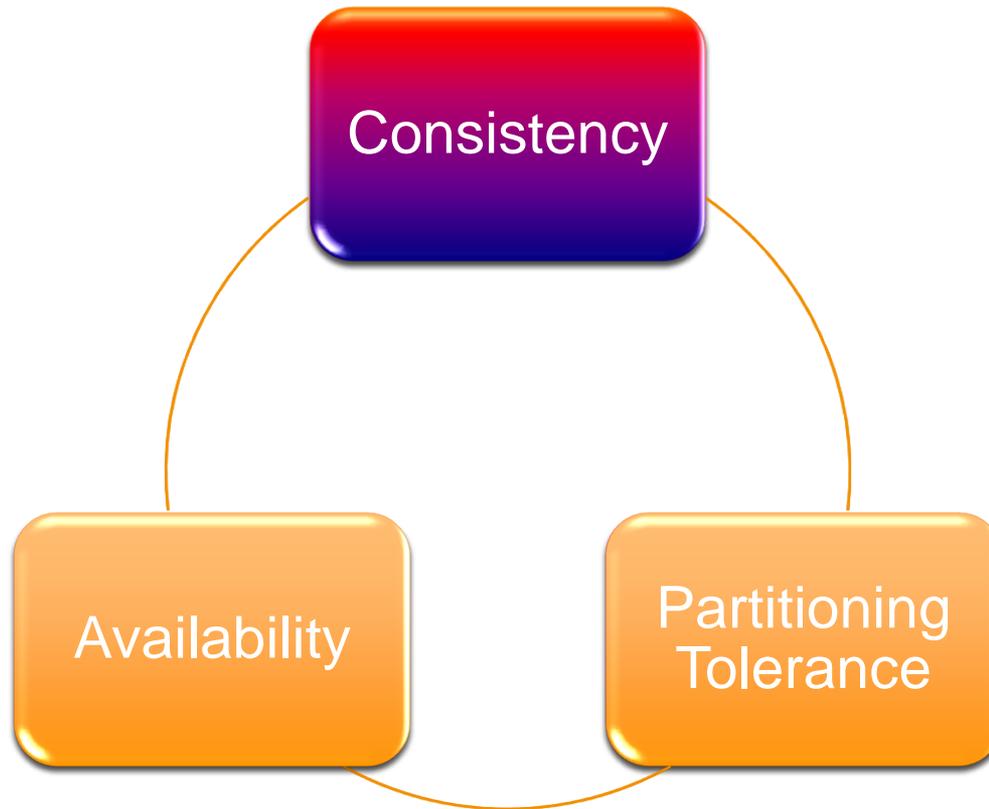
End-User Admin

# Parallels

 On-Premise	 SaaS
Copy Protection	Authentication
Products	Price Catalog
Orders / Entitlement	Provisioning, Contract, Entitlements
Licensing	Authorization & Compliance
Tracking	Usage Tracking & Billing Mediation
Reporting	Monitoring & Reporting
End-User Admin	End-User Monitoring Management

# Some background

## The CAP Theorem



# CAP – so what to address?

Achieve high scalability by putting low prio on consistency

Go the „eventually consistent“ route

Good read on it:

[http://www.allthingsdistributed.com/2008/12/eventually\\_consistent.html](http://www.allthingsdistributed.com/2008/12/eventually_consistent.html)

# Consequences for our Problem Domain

## Some classical License Models do NOT scale

- Floating license, Deadcounter
- Require *global limited* Resource
- Therefore global Synchronization!

**So how to adapt them to the cloud?**

## Doing the transition...

# Map classic models to eventually consistent approach

### No sharp Cut-Off in distributed license resource data!

- Because of the "No Delay!" paradigm the highly scalable system cannot guarantee sharp cut-offs in absolute globally shared values like executions and concurrency values.
- If customers want sharp boundaries, they have to tolerate a drawback on service quality => slower.

# Paradigms of our SaaS Architecture

## No Delay!

speed, bandwidth & reaction time of service must not suffer just because the service is licensed.

## Effects of “slowness”

Amazon: 100 ms delay caused a 1% drop in revenue.

Google: 400 ms delay caused a 0.59% decrease in search requests per user.

Yahoo!: 400 ms delay caused a 5-9% decrease in traffic.

see e.g. <http://learningtheworld.eu/2010/web-performance-optimization/>

## Local intelligence!

# Paradigms of our SaaS Architecture

## **Scale with the customer!**

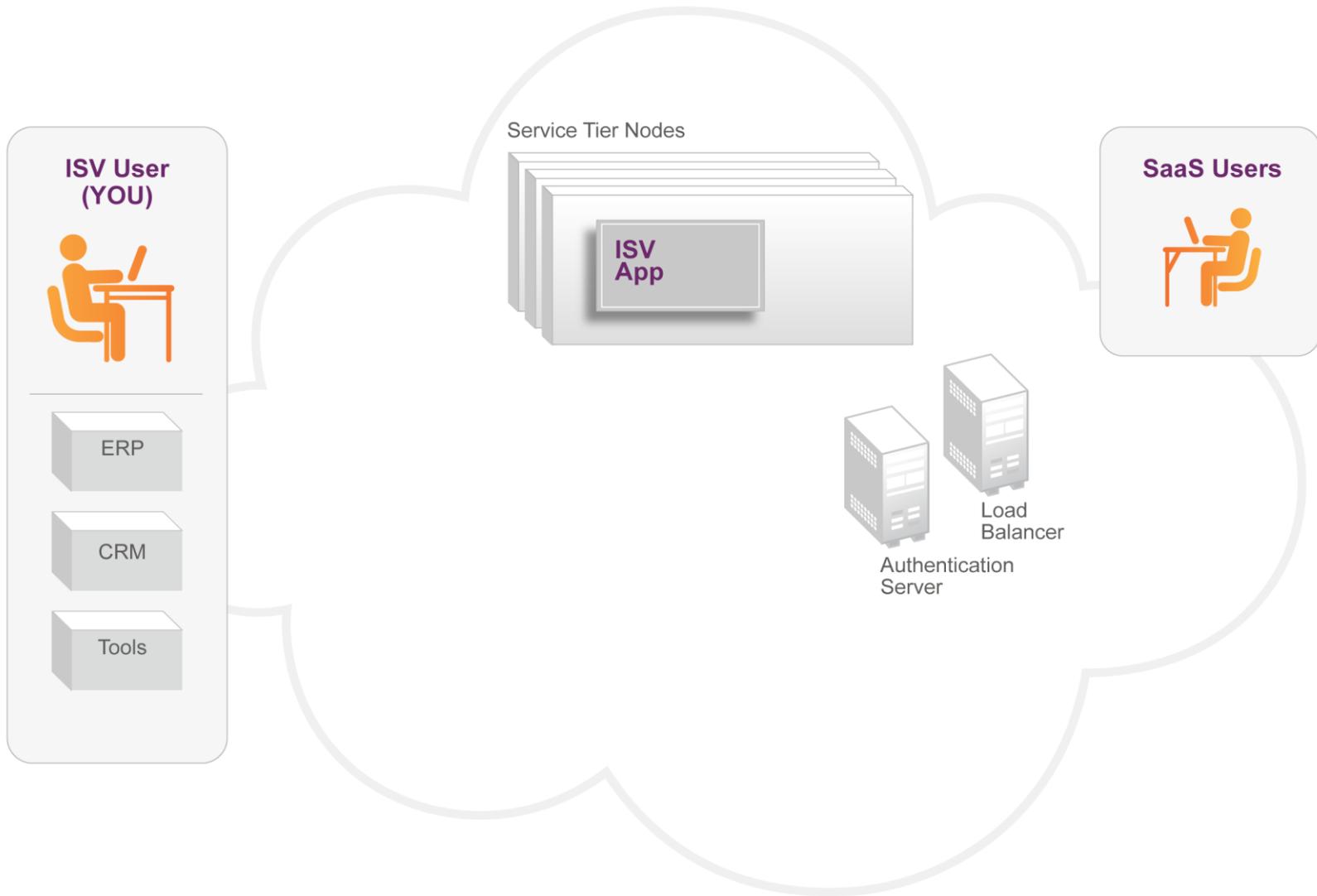
No additional infrastructure because of licensing system.

## **Module for each platform!**

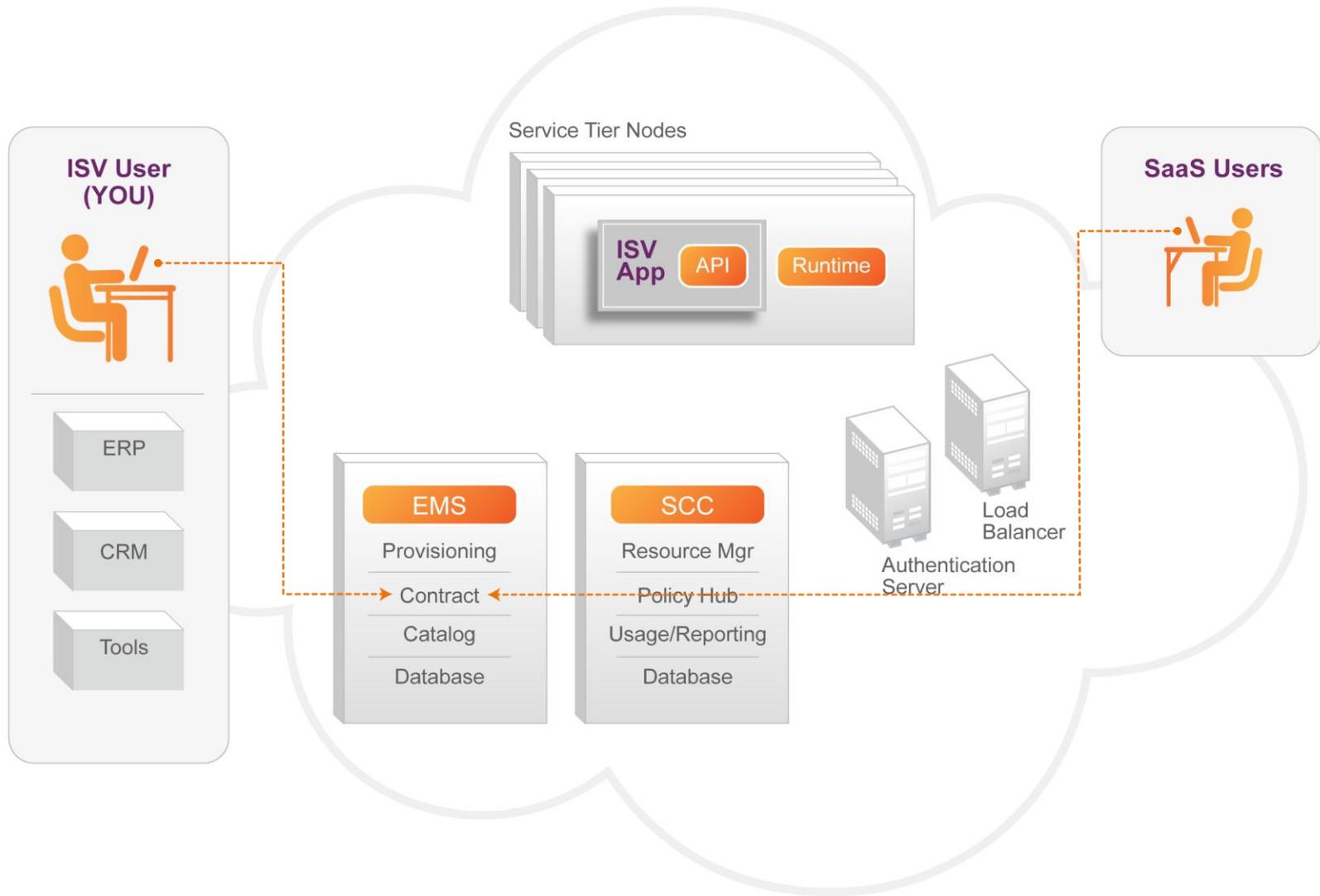
# Sentinel™ Cloud Services in action



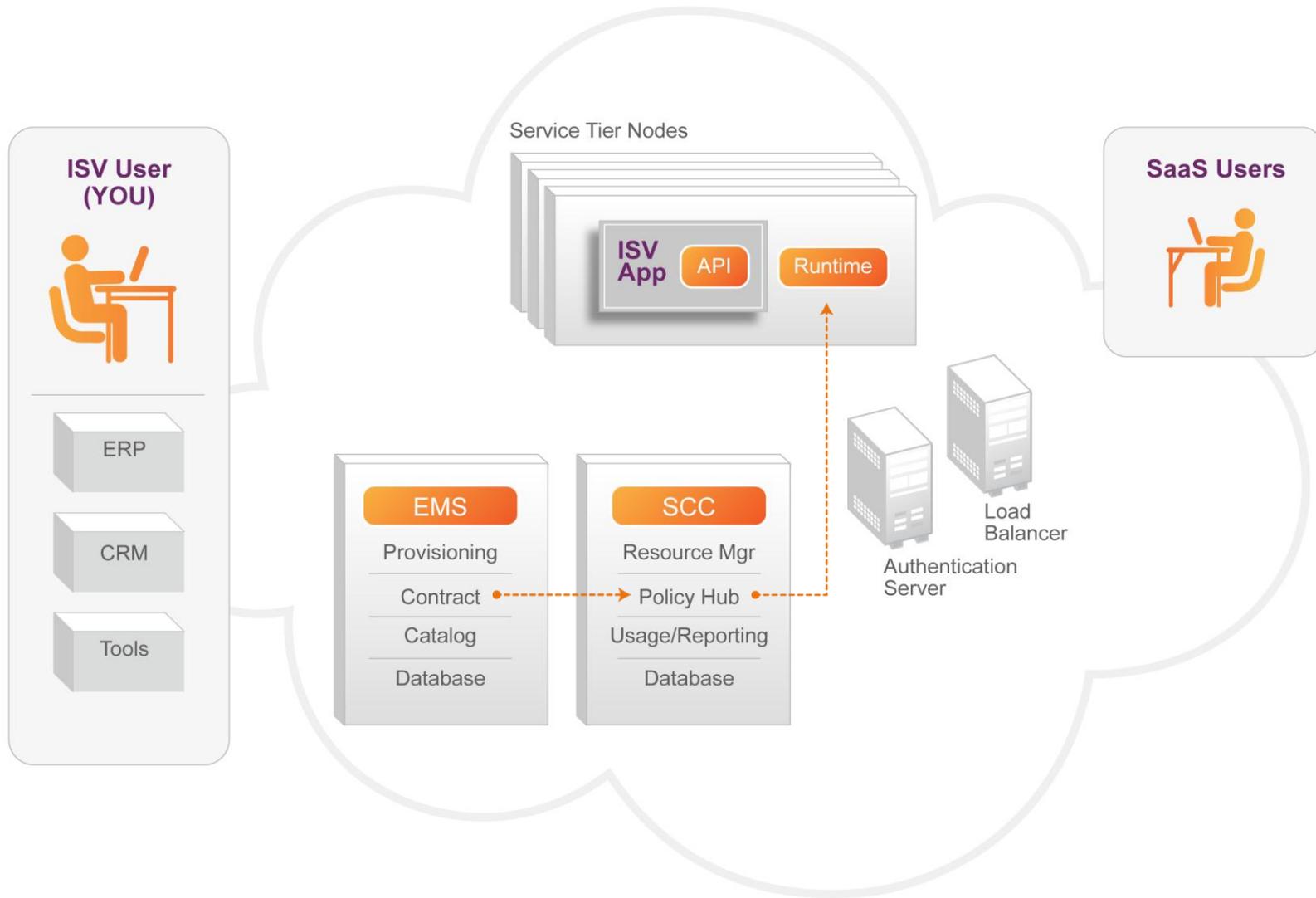
# Sentinel™ Cloud Services in action



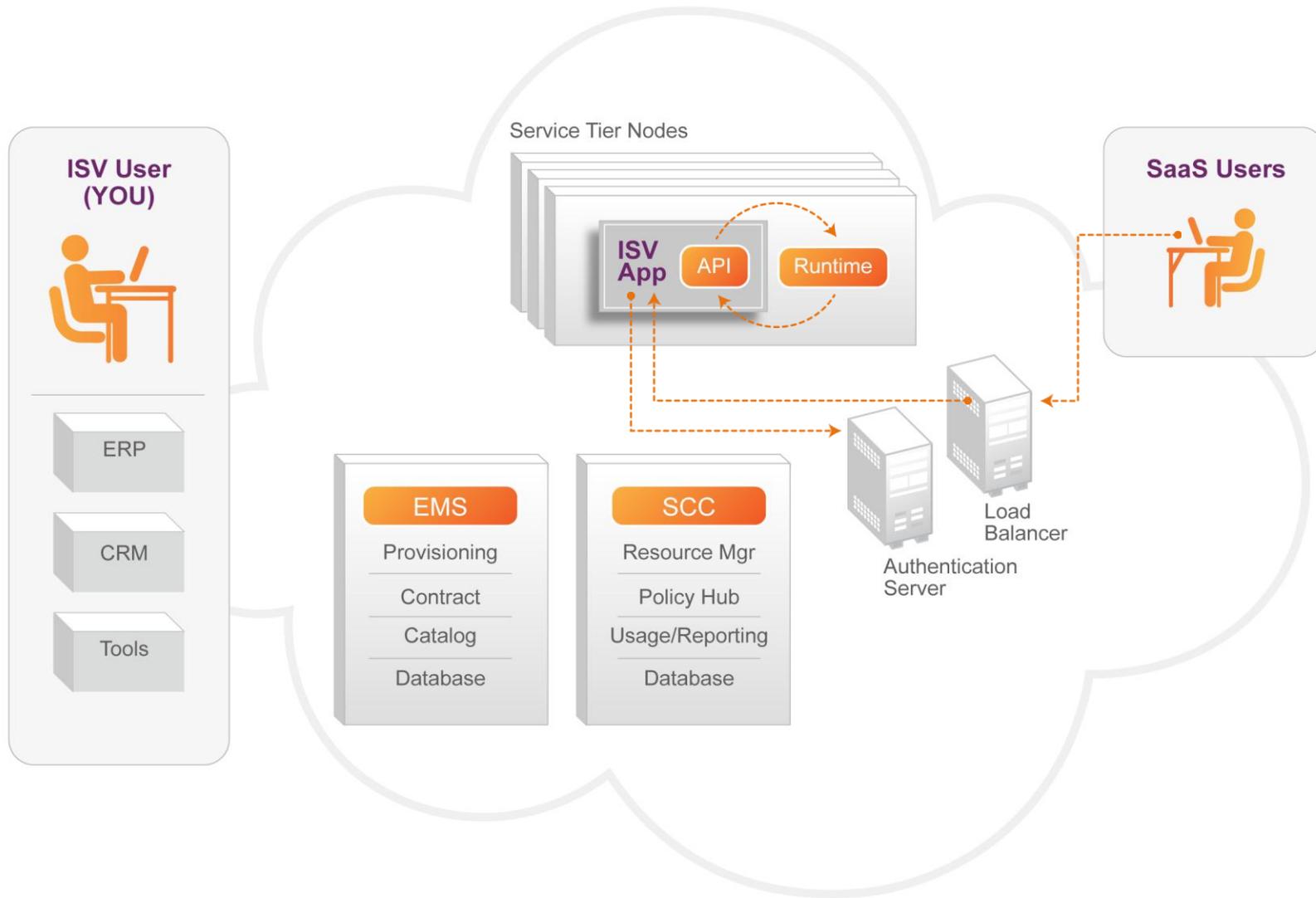
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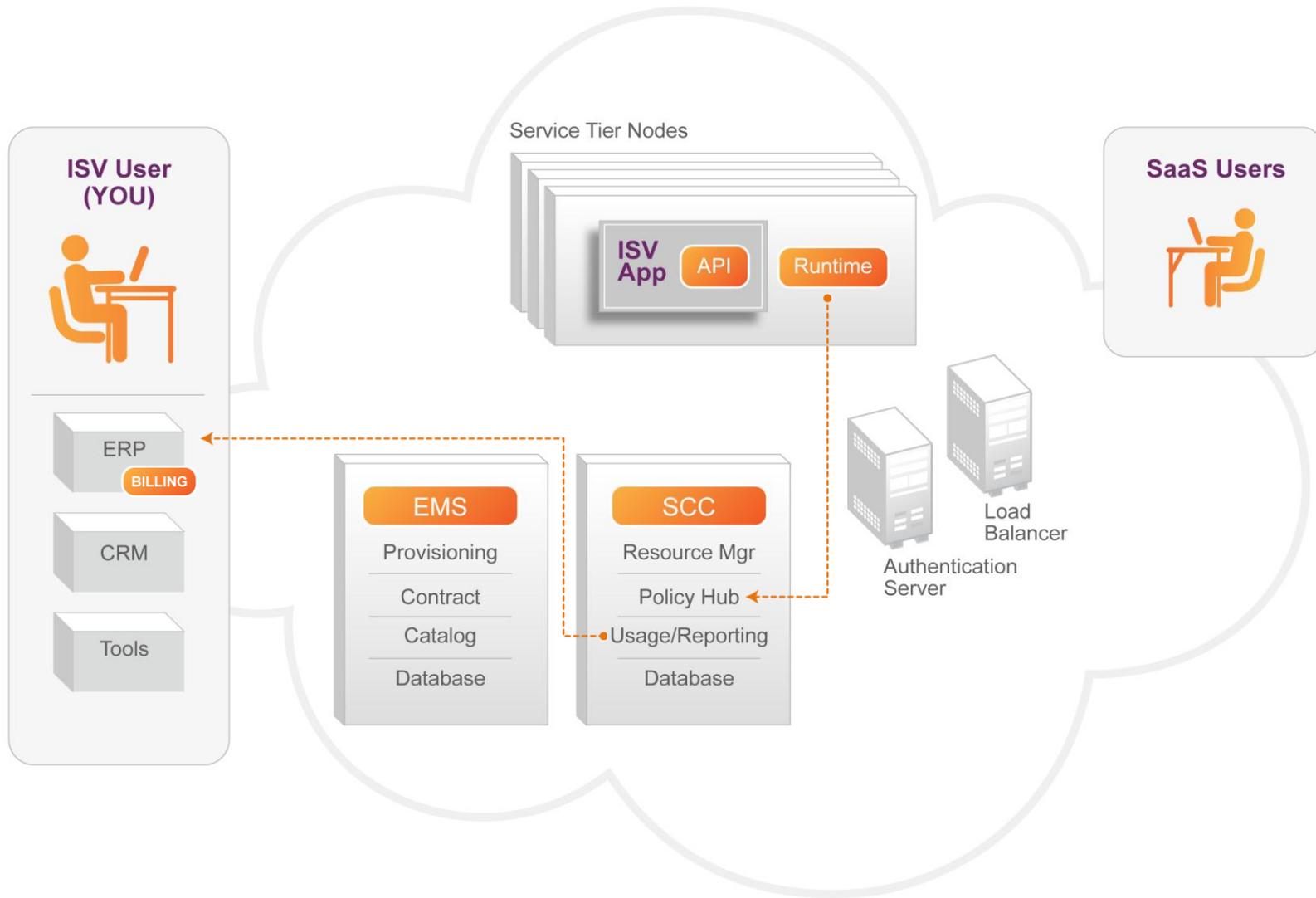
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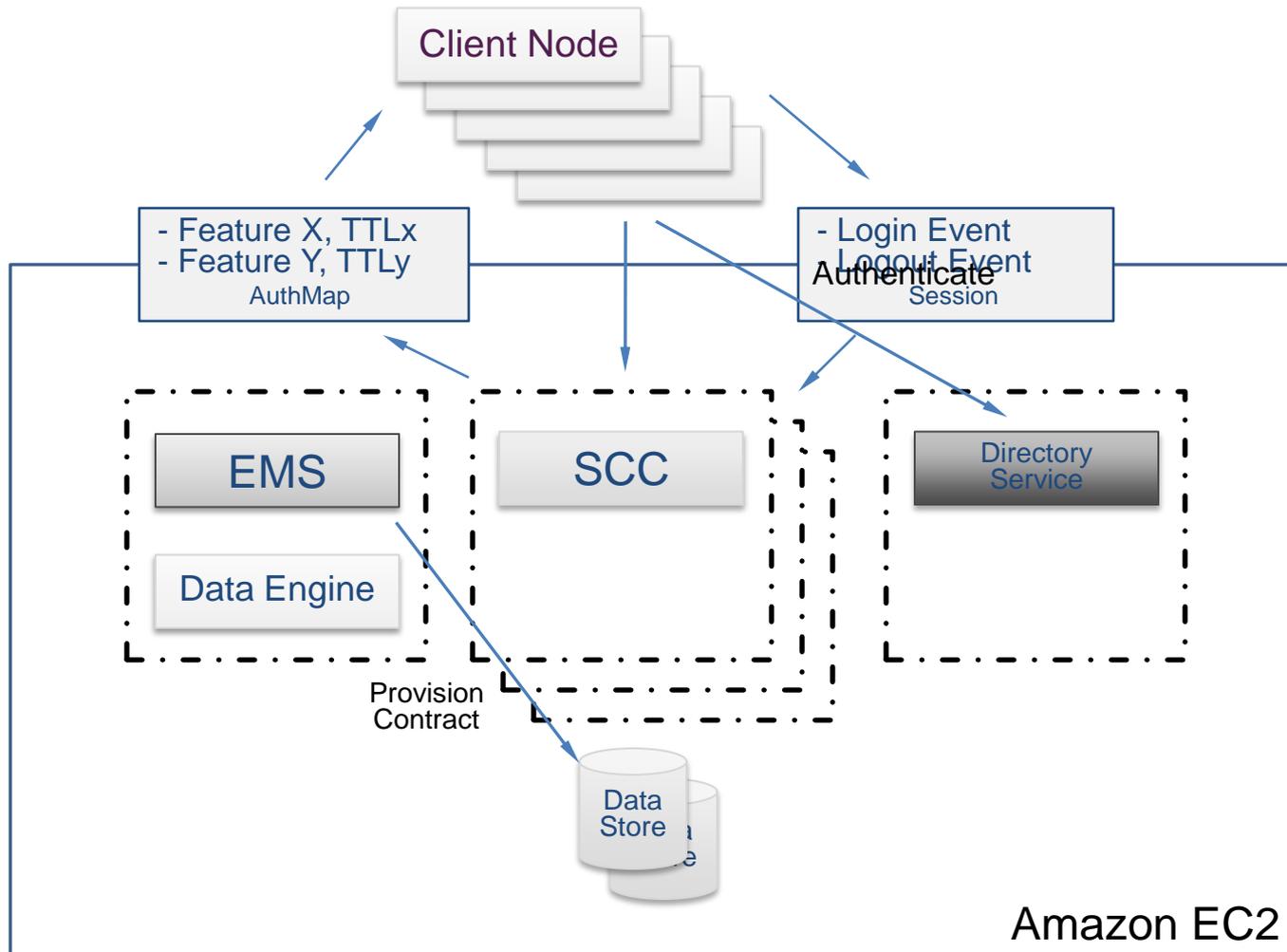
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# Sentinel™ Cloud Services in action



# Sentinel<sup>®</sup>CLOUD in Detail



# Lessons learnt

**Local intelligence reduces external dependency – enables scaling**

**Caching & asynchronous update decouples modules**

**Stateless Components eliminate synchronization**

**Carefully check your classic models!**

# Sentinel<sup>®</sup>CLOUD

Sentinel<sup>®</sup> Cloud Services is currently in beta. Apply for our beta program by visiting [www.sentinelcloud.com](http://www.sentinelcloud.com)

Questions?