

AEROSPIKE  
SUMMIT '19



# IronSource journey to SoR

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# Who is ironSource?

# Who is ironSource?

ironSource is developing the industry's leading growth engine for mobile apps - reaching 2.3B engaged users a month.

By closing the monetization and marketing loop to empower developers to accelerate business growth.



# IronSource in Numbers

2.3B

People Reached **Each Month**

4,200

Apps Installed **Every Minute**  
with the ironSource Platform

150B

Registered & Analyzed Data  
Events **Every Month**

80K+

Partnered Apps

**SEP. 2010**

ESTABLISHED

**10B+**

INSTALLATIONS TO DATE

**750**

EMPLOYEES

**395**

R&D EMPLOYEES

**Tel-Aviv ISRAEL**

**Beijing CHINA**

**Shanghai CHINA**

**Bangalore INDIA**

**San Francisco USA**

**New York USA**

**Shenzhen CHINA**

**London UK**

# Innovative, game-focused ad units and creatives



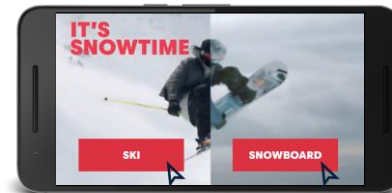
## REWARDED VIDEO

HD quality videos  
Pre-caching  
98% completion rate



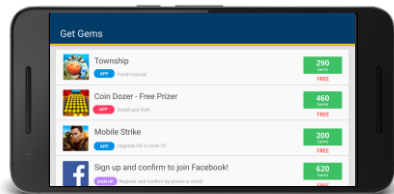
## PLAYABLE

Over 12 game engines  
Immersive, interactive experience  
3X IPM (installs per thousand impressions)



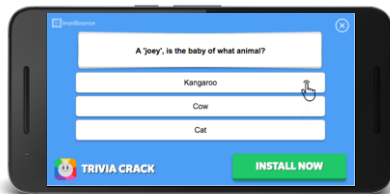
## INTERACTIVE VIDEO

Exclusive ironSource technology  
Choose your own adventure experience  
60% engagement rate



## OFFERWALL

High eCPMs  
Risk-free distribution  
Smart loading technology



## INTERACTIVE END CARD

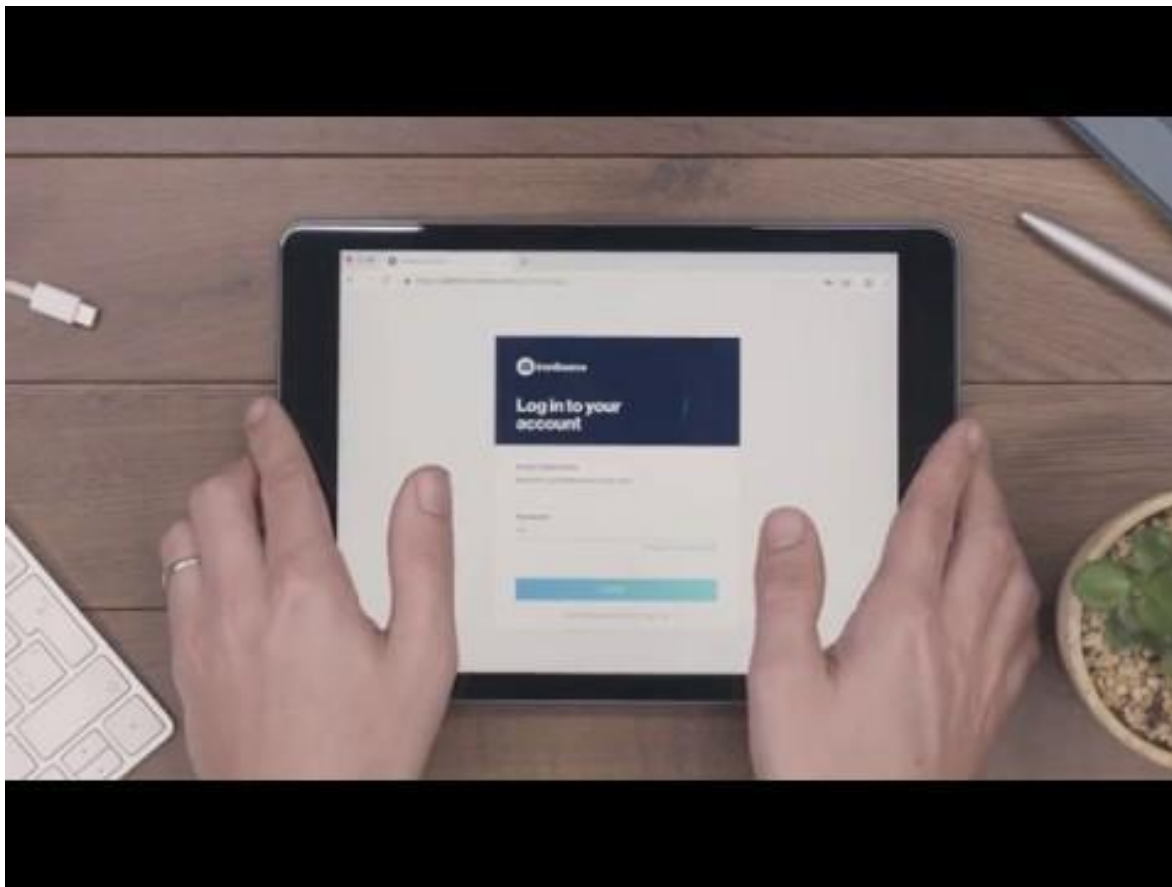
Boosts video monetization  
Widely applicable  
2X CTR



## VIDEO INTERSTITIAL

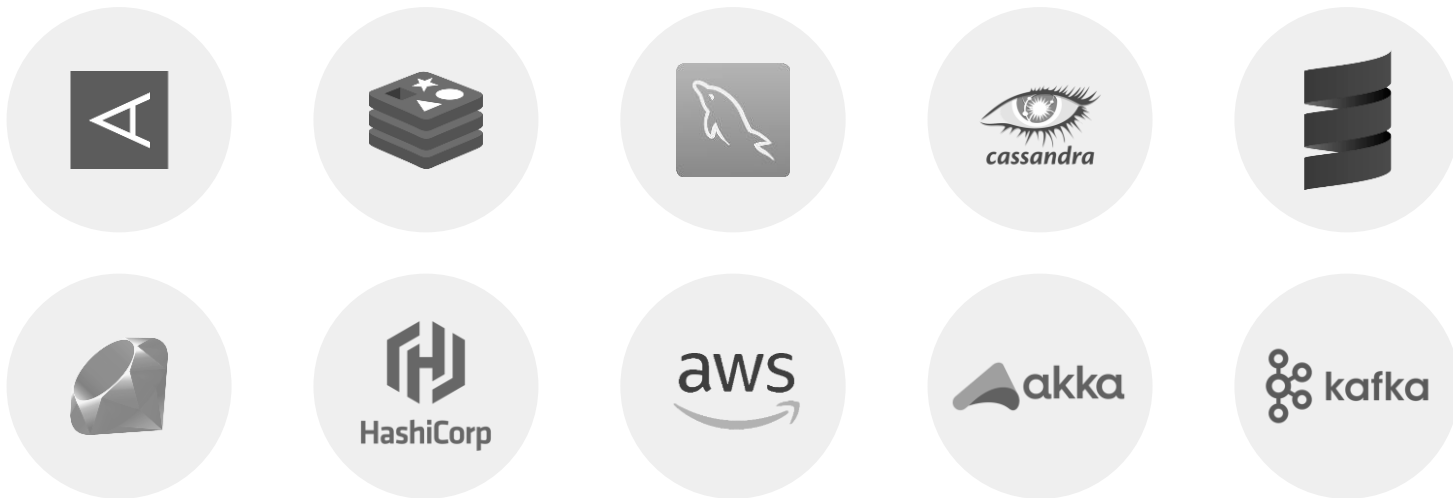
Fast growing ad unit  
High engagement rate





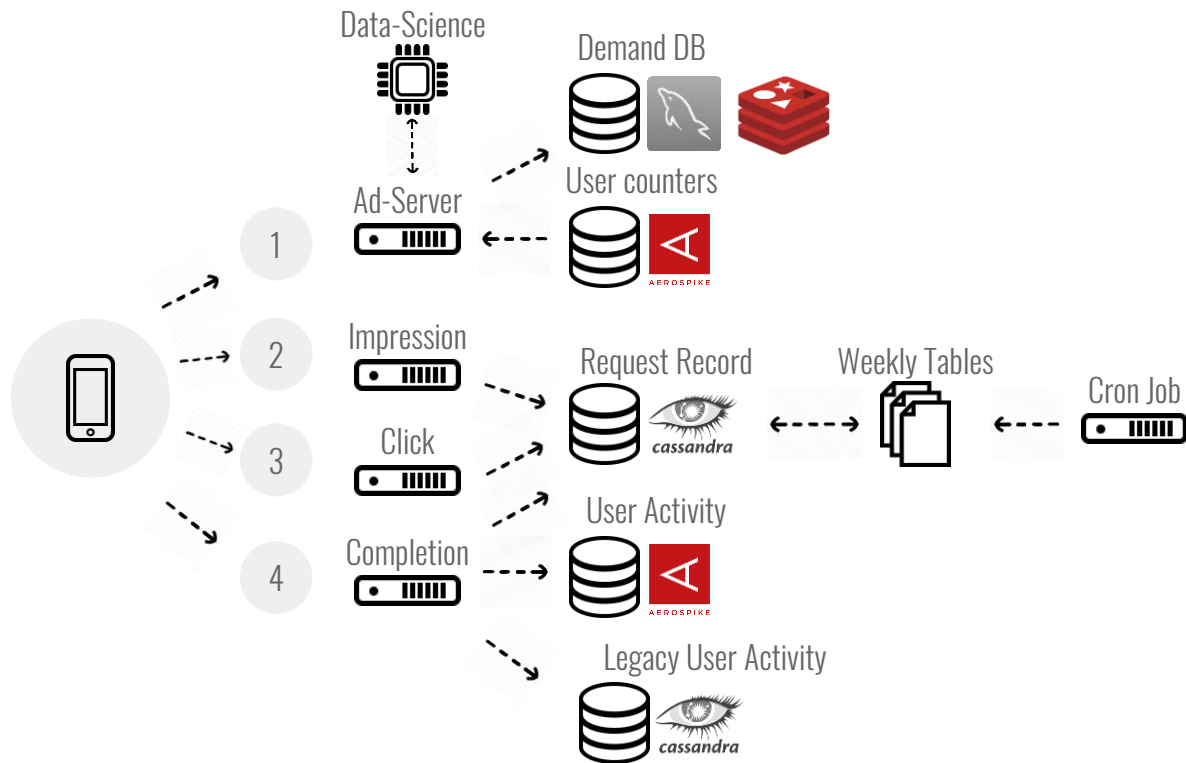
# What do we really do?

# Tech stack





# Basic User Flow



# User counter service (capping)

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## Objective

- Store all capping counter, with different dimension and time intervals.
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## Use

- Mission critical service
  - On-line service: meaning that the user is waiting for response, We need to return as soon as possible.
  - High latency or even down time can lead to over-delivery and immediate revenue losses.
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## Scale

- 100k + IOPS reads
  - 70k + IOPS writes
  - Average object size ~5 Kb. Total set is ~20 Gb.
  - IOPS and storage rapidly grow each year.
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# The Redis experience



- Redis is a free, in-memory NoSQL db.
- The command API and support of CTD's is great
- Fast learning curve for developers
- But...
  - Redis didn't have a real cluster
  - **And very soon we reached a point that redis couldn't scale any more.**
- We need something else ...

# The Aerospike experience



- *We moved to Aerospike !*
- Aerospike is developer friendly
- The scale problem was first to be **solved**:
  - 130/75 K r/w IOPS with 15 instances (i3.4xlarge)
  - Uptime 99.9%
  - < 1ms latency.
- *"I barely touch the cluster, it simply works"*
- **Most importantly, the shift enabled us to offer new business features to our product.**

# Aerospike use cases (CDT's)

## User counters (capping)

*we need to limit the number of times a user sees a specific campaign (hourly / daily / life time)*

userId	Daily Capping	
	cmd_id	counter
	123	3
	567	5

- All operations are atomic with support of map operation.
- Storing all counters in a map allow us to get all the data for a specific user in one read.
- Using different sets for each time period (we need different ttl per use case).

## Bundle Suppression

*we don't want to show the user offers related to already installed apps.*

userId	Bundle List
X1	app1,app2,app3..

- Storing all the bundle in one list allow us to get all the relevant data in one read
- operations are atomic with support of list operation.

# List of Key Benefits

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## Data modeling

- Support Complex data types
- Udf and lua Support
- Schema flexibility

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## Fast onboarding

- Easy to use java driver (with good scala wrapper)
- Good Documentation

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## Scale

- < 1 ms (with the right hardware and a good Schema design)

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## Maintenance

- Easy to setup new cluster.
- Minimal to none daily maintenance.
- Scan command is extremely useful for data manipulation.

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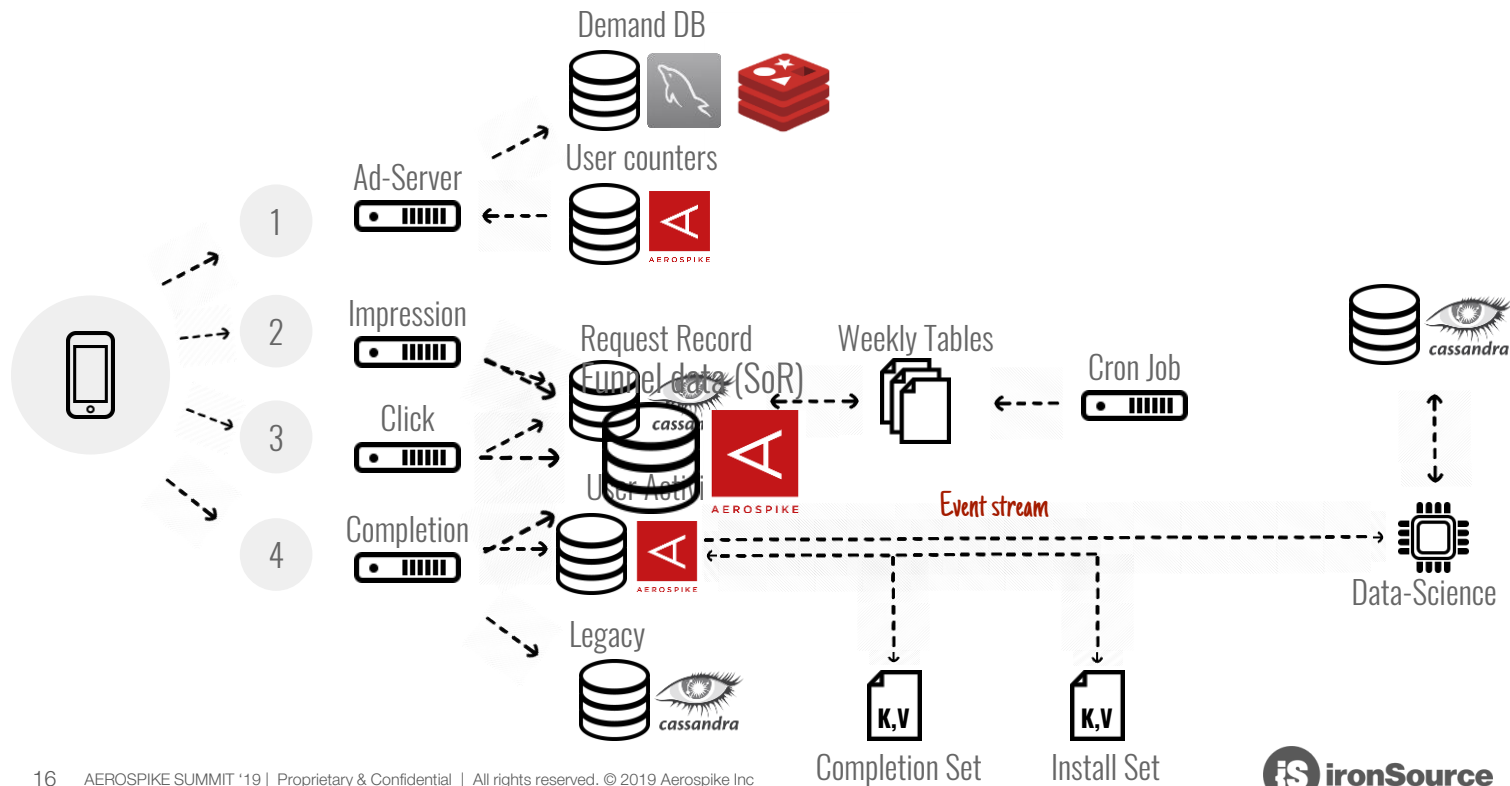
## Support

- Local reseller (IL) helps us along the way
  - Direct answers from aerospike R&D team.
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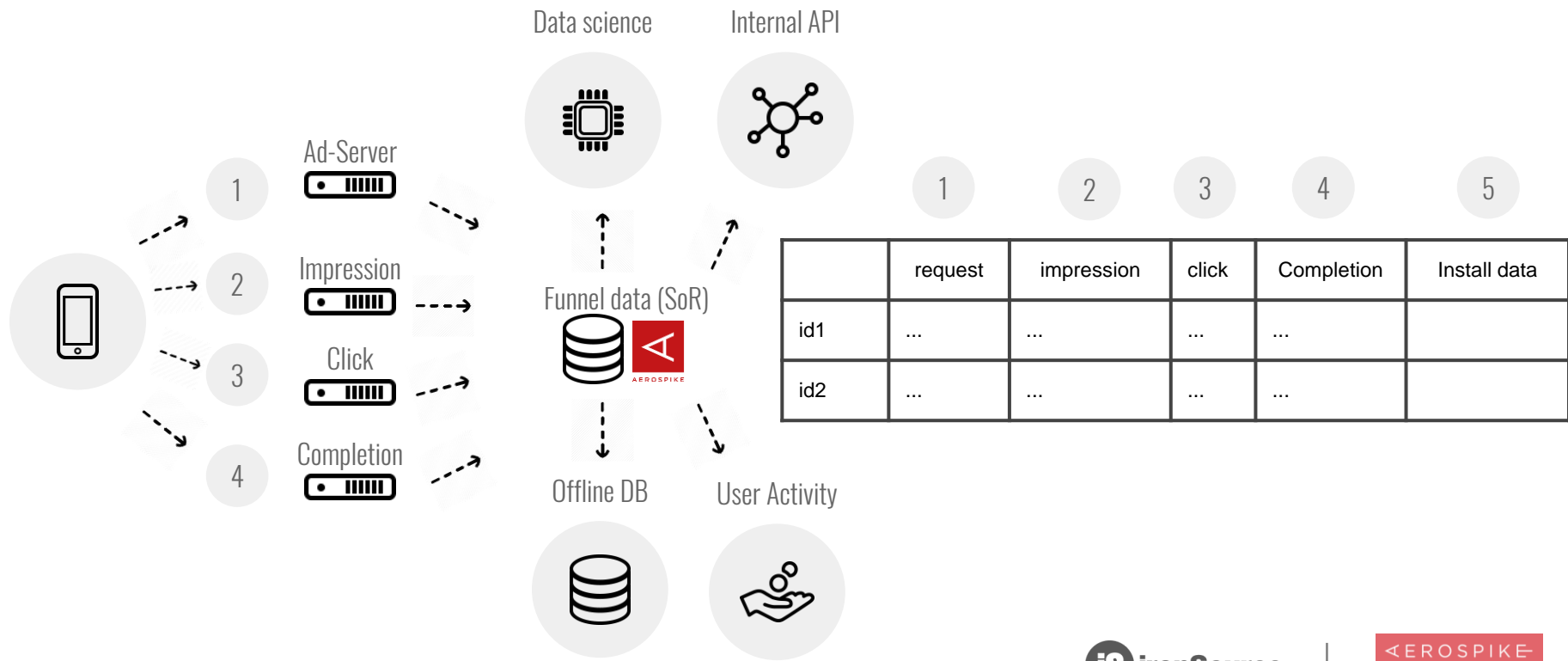


# System of Records with Aerospike

# Basic User Flow



# SoR flow



# SoR with Aerospike. Why ?



- Proven performance and stability.
- A solution already known to our developers and devops teams.
- Flexible schema helped simplify the architecture.
- Special licensing for SoR system.

# SoR and business advantages



- The concept of “single source of truth” simplified our system, meaning developing new business features is now faster.
- We can now reflect more comprehensive data to our supporting systems, especially our data science team.
- Consolidating multiple DB to single DB cut down the cost of infrastructure and licensing.
- Long term storage in SoR may decrease feature spending on relational database.

# Thank you for your attention