



**TIME FOR
DIGITAL MASTERY**



**DEEP KNOWLEDGE
COMPLEX USE-CASES
DIGITAL TRANSFORMERS**



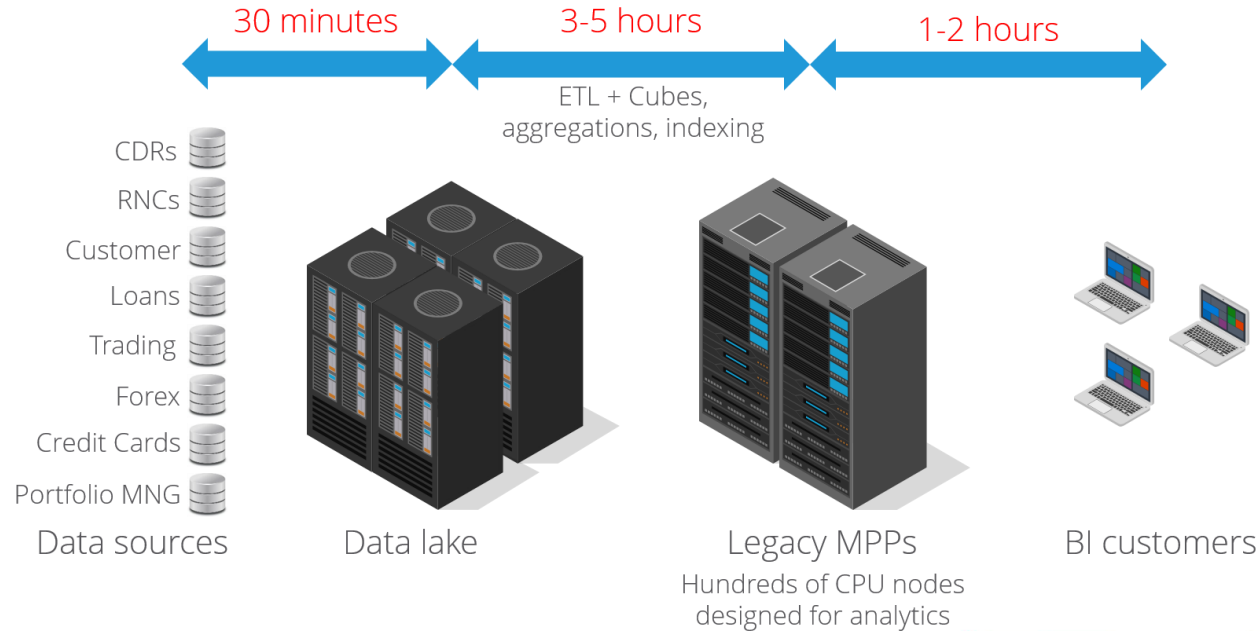
GPU SQL Database

Enabling massive data analytics



challenge: major latency from data to insight

Preparing data for analytics can take **many hours** per report or query - increasing response time



Value proposition



20x more data

SQream customers analyze, on average, 20x more data than they did before SQream DB

SQream DB installations range from a couple of TB to hundreds.



100x faster queries

SQream DB typically reduces query time from hours to minutes, or even seconds.



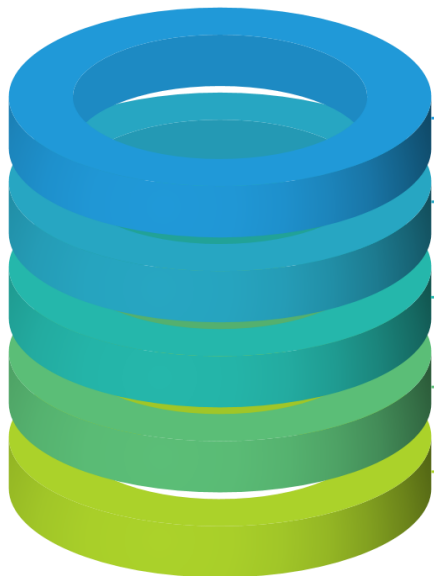
10% of the cost

Using power-efficient GPUs, in conjunction with standard hardware reduces costs by orders of magnitude.

SQream DB's use of GPUs puts supercomputer capabilities in a small, power-efficient server.

SQream DB also compresses by 1:4, further slashing storage costs.

SQream DB – a big DATA GPU SQL database



Powered by GPUs

- Massively parallel engine
- Not limited by RAM



Fast

- Powerful columnar storage
- Always on compression
- 2 TB / hour / GPU ingest speed



Scalable

- 10 TB to 1 PB with ease
- More GPUs = More Users



SQL Database

- Familiar ANSI SQL
- Standard connectors



Extensible for ML/AI

- Python API, Jupyter, etc.
- Built for data science

SQREAM DB INTEGRATES WITH your bi ecosystem



Data Sources

APACHE Spark
STORM
kafka
CSV
Parquet
ETL and others
Informatica
talend

Java	Python	SQL	R	C++
Aggregations	ANSI-92 compatible	JOIN on any field		
Filtering	SQREAM	Regular expressions		
Time series	Window analysis	ODBC, JDBC, Python connectivity		

BI & Visualization

+ a b | e a u
TIBCO Spotfire
Qlik Q
jupyter

Infrastructure

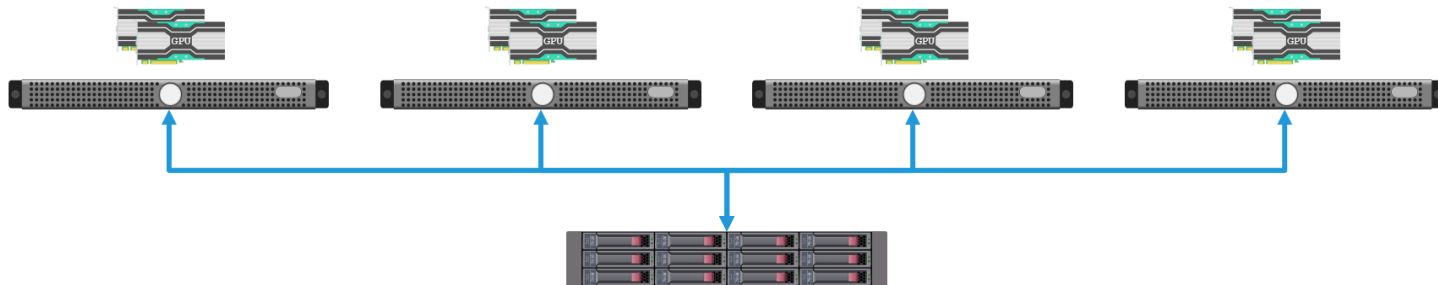
CISCO
Hewlett Packard Enterprise
IBM
DELL EMC
NVIDIA
amazon web services
Microsoft Azure
IBM Bluemix

Multi-node configuration

Certified servers     

Enabled with 

Certified storage       





We jump in style for your
high digital challenges

USECASES



WWW.TEMPERFIELD.COM



How we help in a variety of industries

- Save costs on network probes by analyzing cell logs directly
- Create new revenue streams by understanding customer behavior for near real-time sales campaigns
- IoT infrastructure enabler

Telecom & IoT

- React to campaign performance in near real-time
- Better decisions backed by longer range of analytics
- Shift control of querying from Spark programmers back to marketing analysts

Ad-Tech & Retail

- Near real-time analysis of trading and transactions without pre-aggregations
- Eliminate generation of OLAP cubes

Financial

- Fewer false alarms, fewer false positives
- Longer range of analytics means improved ROC curve for detection and prevention

Cybersecurity

Telecom



NEXT GENERATION BIG DATA ANALYTICS FOR TELECOMS

DATA SOURCES



NEAR REAL-TIME CAPABILITIES



STORE IT. ANALYZE IT. RAPIDLY.

Main Challenges

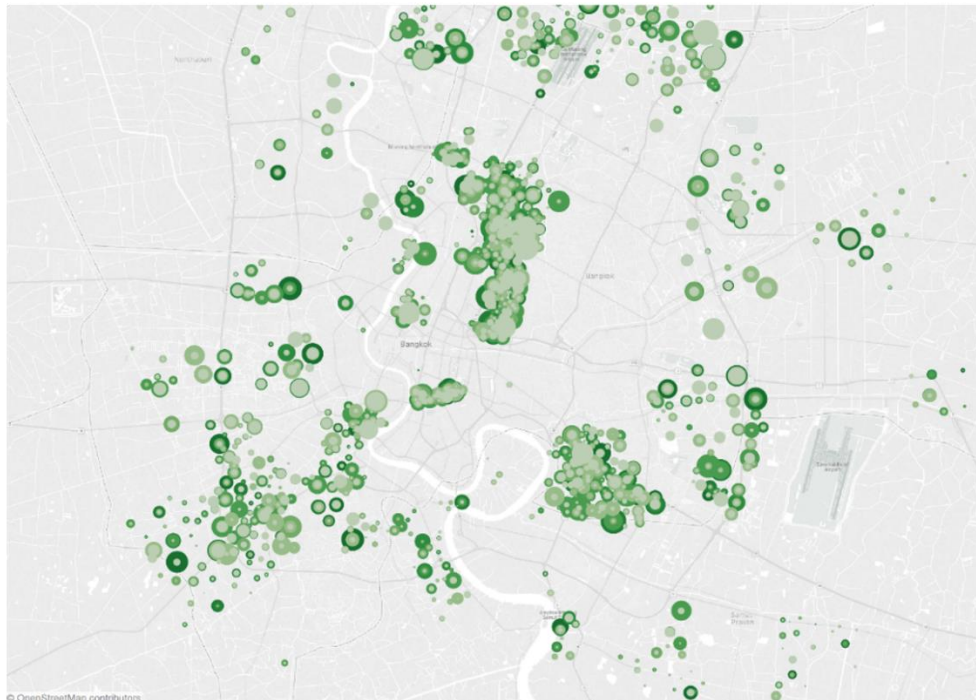
- **Couldn't get a holistic view of network subscribers with ad-hoc queries**
- Dashboard took hours to show locations of key customers

Business Requirements

- Enable up sale capabilities of new products and services
- Track locations of key customers
 - Help prevent churn ensuring reliable service in commonly traveled areas
 - Decrease potential of competitor targeting

Where do my customers spend their time?

Joining 3.3B rows ⇄ 40M rows ⇄ 300K rows, to find out where people hang out





The cost of performance

Intelligence about 40 million customers with SQream DB

Columnar MPP



Load time
15x faster



Reporting time
12x faster



Cost of Ownership
50x more cost effective



40 nodes – 5 full racks
7600 CPU cores

SQREAM SQream DB v1.9.6



20 m



10 m



\$200,000



HP DL380g9 with NVIDIA Tesla GPUs
96 GB RAM + 6 TB storage

Largest israeli telecom operator



Main Challenge

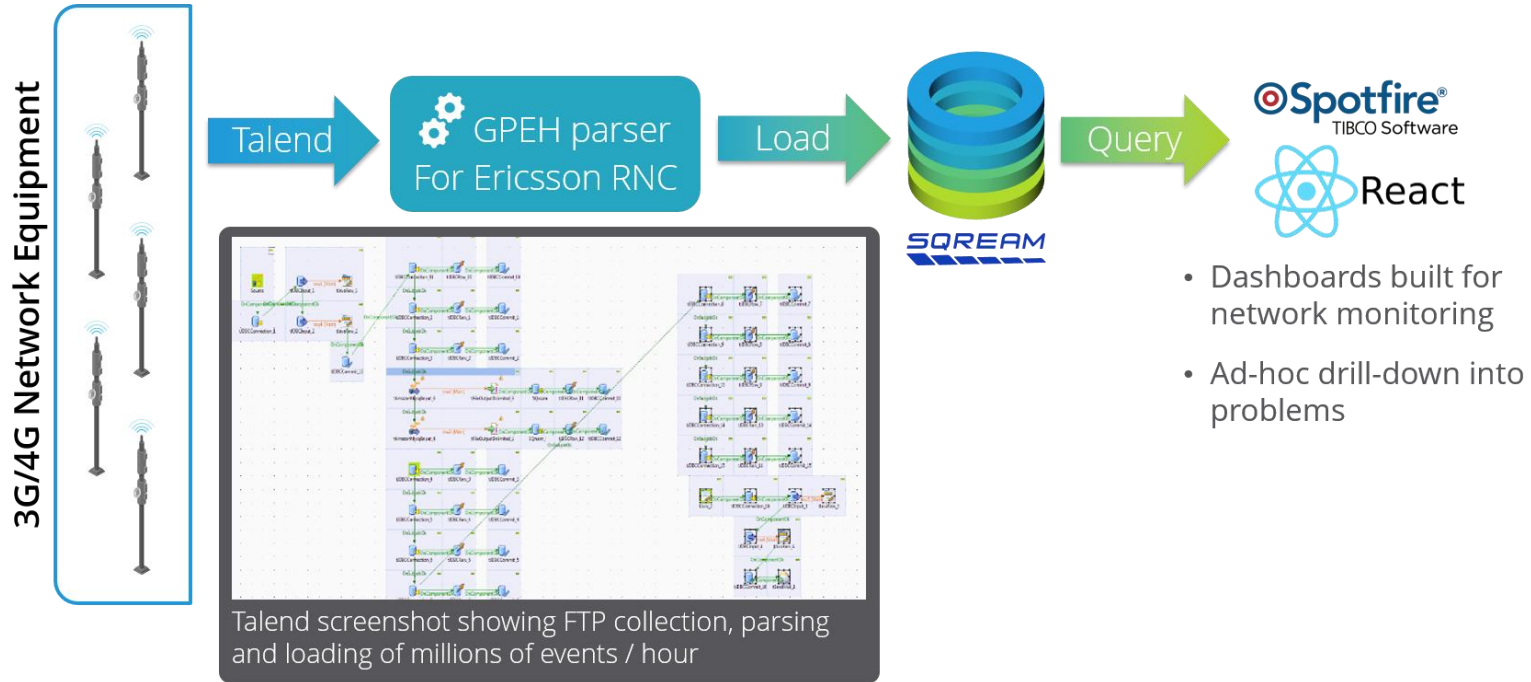
- Cost of network probes at base stations for collecting local parameters and network information
- Troubleshooting more than just individual base stations
- Needed to complete picture of network nodes for troubleshooting

Business Requirements

- Uncovering dropped calls and other network issues costing millions

Cellcom reduces dropped calls by up to 90%, saving millions of \$

Using one server to analyze RNC logs directly, avoiding expensive network probes



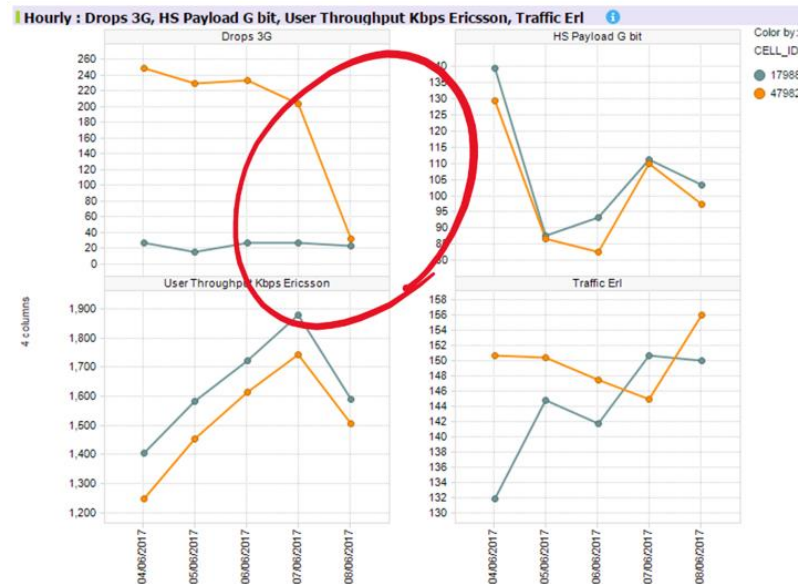
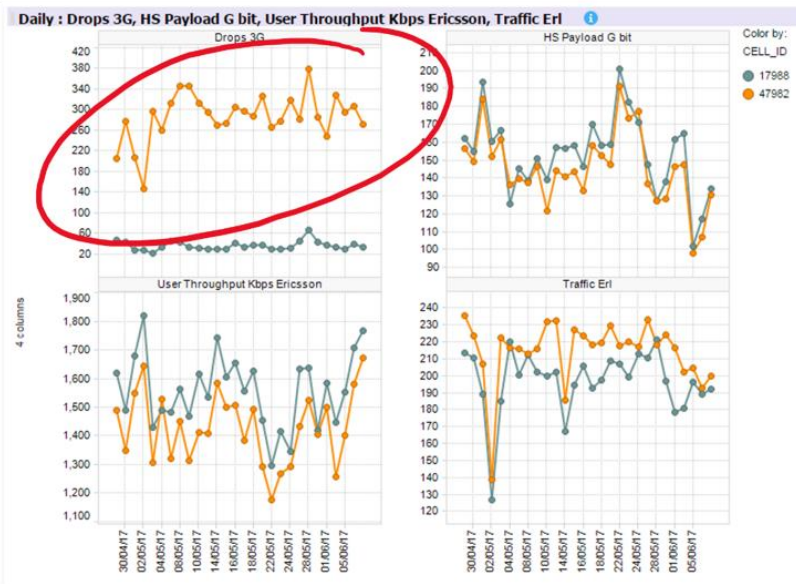
Reducing dropped calls by 90%

See more information on sqream.com



Reducing dropped calls by 90% at a Cellcom (mobile telecom operator) with SQream DB, without purchasing expensive, dedicated RNC network probes

"We saw a tremendously cost effective opportunity to obtain comprehensive analytic abilities we didn't have before SQream, required to continuously improve our network service for our customers." –RF Group Leader



Leading provider of multi-channel messaging



Main Challenge

- Needed to handle the increasing data load, with plenty of room to grow, as its business boomed
- More than 40,000 of queries per day, and hundreds of millions of rows ingested daily

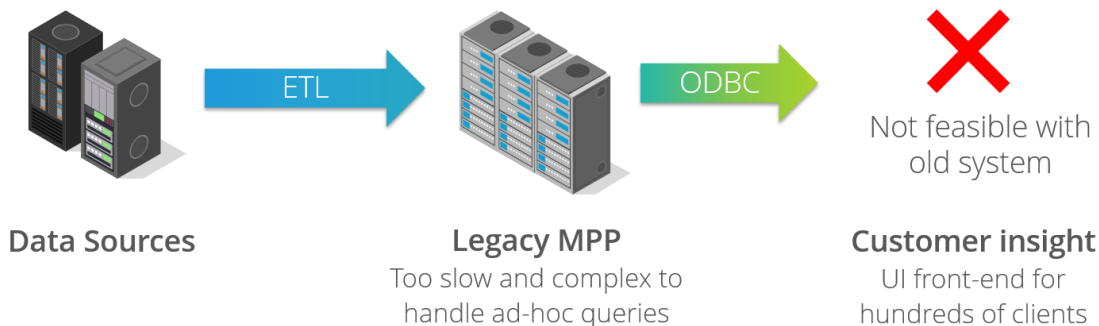
Business Requirements

- Enable customers to analyze behavioral reports with self service capabilities
- Maintain control over customer-facing loyalty-building activity

Extending analytics timeframe for self-service

Analyzing 11x more data, up to 20x faster

- Billions of messages sent every month, in 200+ countries
- Needed to analyze more than a week's worth of data, while reducing complexity of the current MPP system.
- Legacy MPP took many minutes to return results for just 7 days, which made the UI front-end frustrating to use



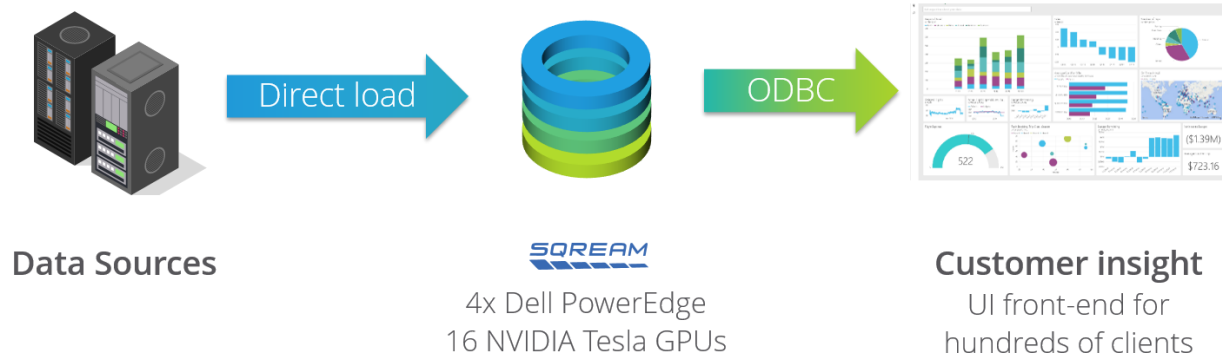


Extending analytics timeframe for self-service

Analyzing 11x more data, up to 20x faster

ACL chose SQream as a powerful GPU database system, which enables the simplification of processes, maintaining high availability and reliability – while **extending the analytics window from 7 days to 3 months**.

- Legacy MPP took many minutes to return results for just 7 days, which made the UI front-end frustrating to use
- **20x faster on 11x more data** – Clients ad-hoc query 3 months of data in under 10 seconds



Ad-tech and Retail Technology



PubMatic

PubMatic created an omni-channel revenue automation platform for publishers and enterprise-grade programmatic tools for media buyers.

TRILLIONS of ad impressions monthly
equate to **140TB (raw) daily**

LIVE ANALYTICS NOT AVAILABLE
(due to database size constraints)

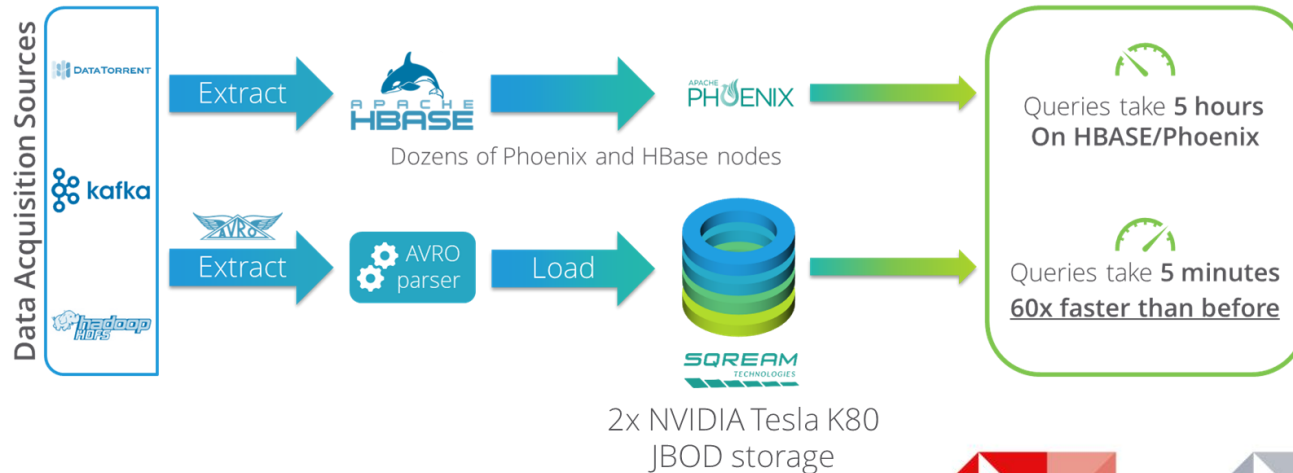
AD-HOC QUERYING currently not easy

■ PubMatic increased revenues by improving bids

PubMatic deployed SQream DB to unlock more insights from their Hadoop cluster

Why PubMatic chose SQream DB

- **TRILLIONS** of ad impressions monthly equate to **85TB (raw) daily**. PubMatic needs to analyze many days worth of data. This was too slow with Hadoop / Phoenix.
- **Live analytics was unavailable due to Hadoop limitations**
- PubMatic deals with dynamic CPM campaigns. The need to construct bidding histograms over time-slots was extremely time-consuming in the current system – query time around 5 hours!

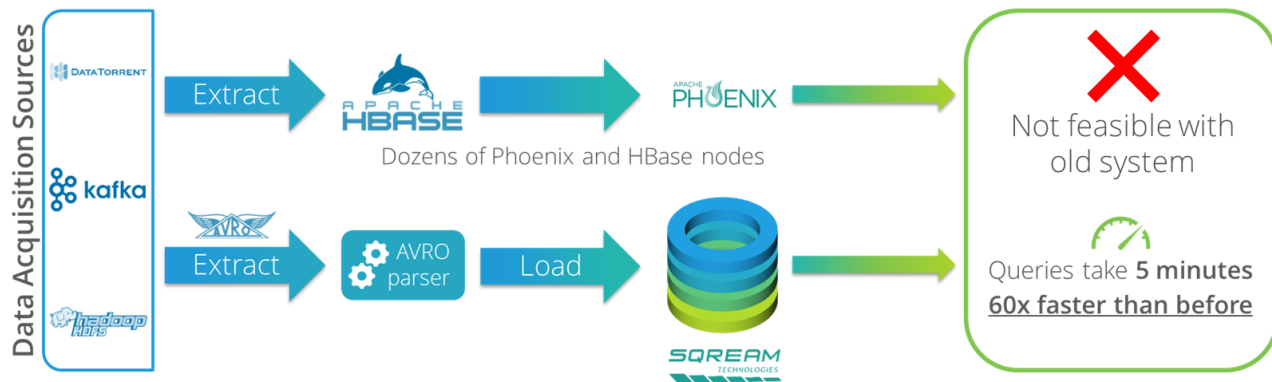


■ PubMatic Expansion – double the GPUs

PubMatic deployed 6 more GPUs to analyze even more data – 16 days worth

PubMatic doubled the existing SQream DB solution with 2 more Gemini GPUs, to 8 NVIDIA Tesla GPUs
PubMatic now takes in 16 days worth of data, **360TB**, to enhance bid histogram accuracy

The overall solution remains the same. By adding more GPUs, SQream DB can now support more users with more queries



8x NVIDIA Tesla GPUs
Qumulo NAS – 360TB

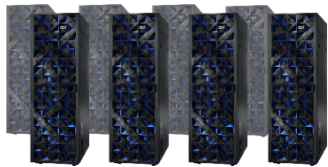
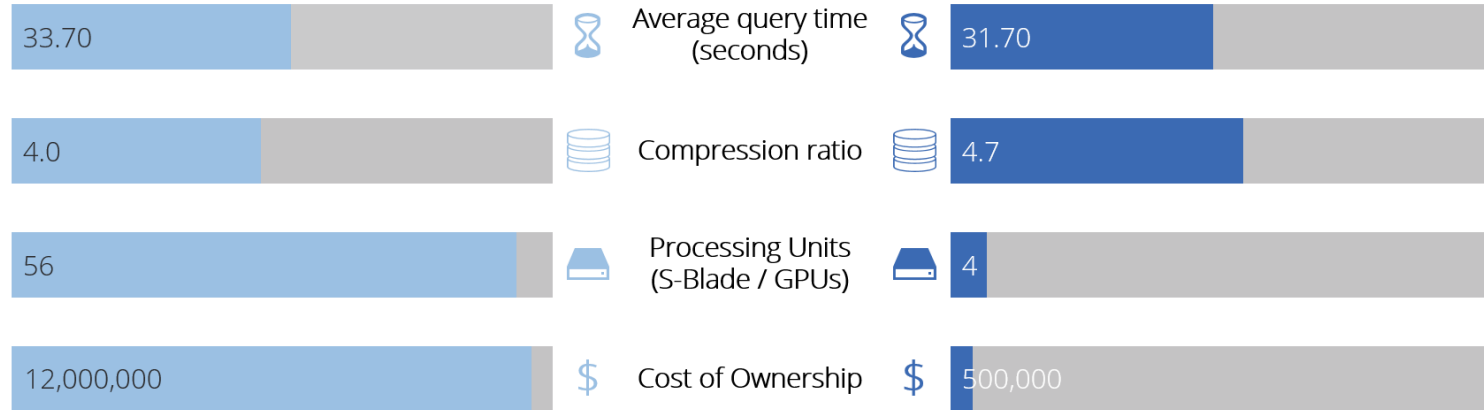
Retail - The cost of performance



All-commodity volume (ACV) calculation on 24 TB of data, 300B rows, 8 different tables - with complex, nested joins

Traditional Analytics Database

SQREAM SQream DB v1.9.6



8 full 42U racks, 56 S-Blades
7 TB RAM



Dell C4130 with 4x NVIDIA Tesla K80
512 GB RAM + iSCSI JBOD (20TB)

Finance

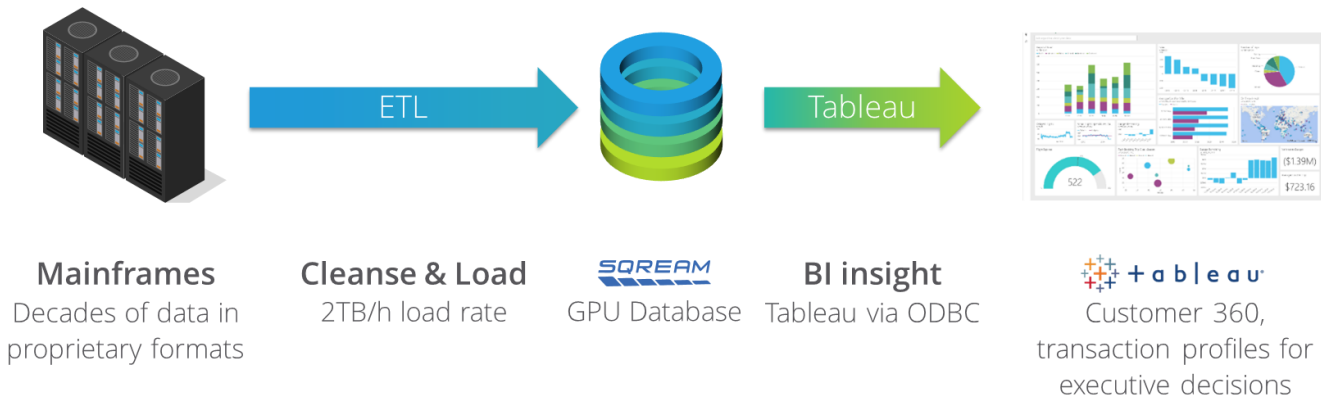


Customer decision data from untapped MAINFRAME data

Customer insight from previously untapped data, up to 1680x faster

Large international bank chose SQream DB to gain insight into previously unused data:

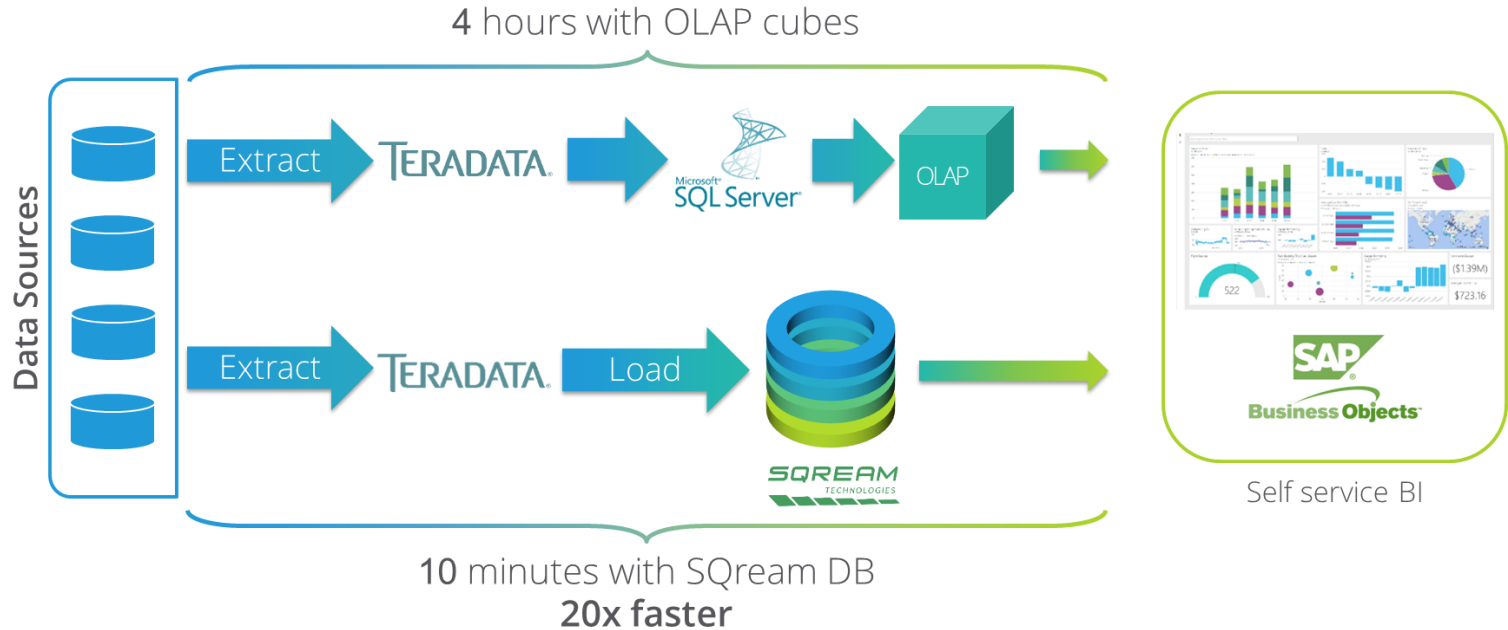
- **Never before seen insight, with fast discovery** – previous attempts with Hadoop and legacy data warehouses did not yield results. Queries would take **up to a week** to complete.
- **Actionable data exploration now made possible with ad-hoc querying** - was previously impossible due to data structure and existing infrastructure inflexibility.
- SQream DB now single source of knowledge, combining hard-to-analyze data from mainframes





Provide improved self-service BI to customers

Speeding up Teradata by eliminating OLAP cubes at a leading credit payment group



Cybersecurity

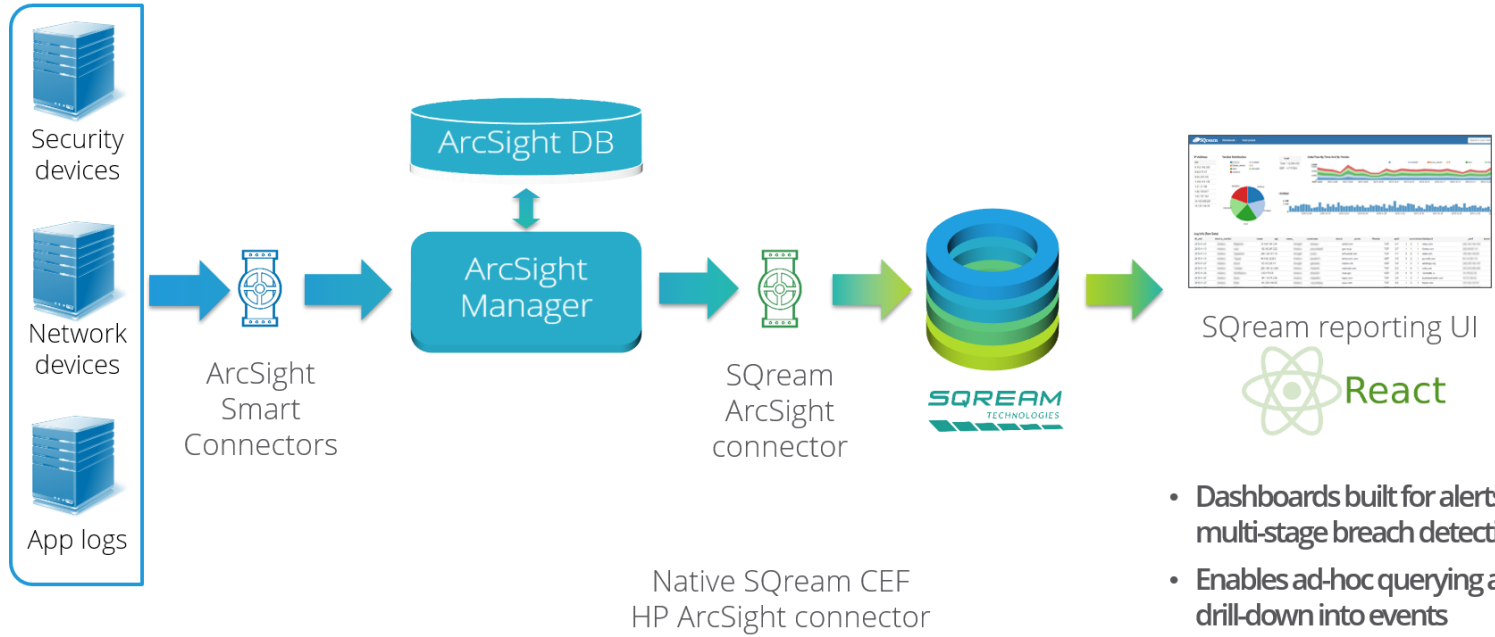




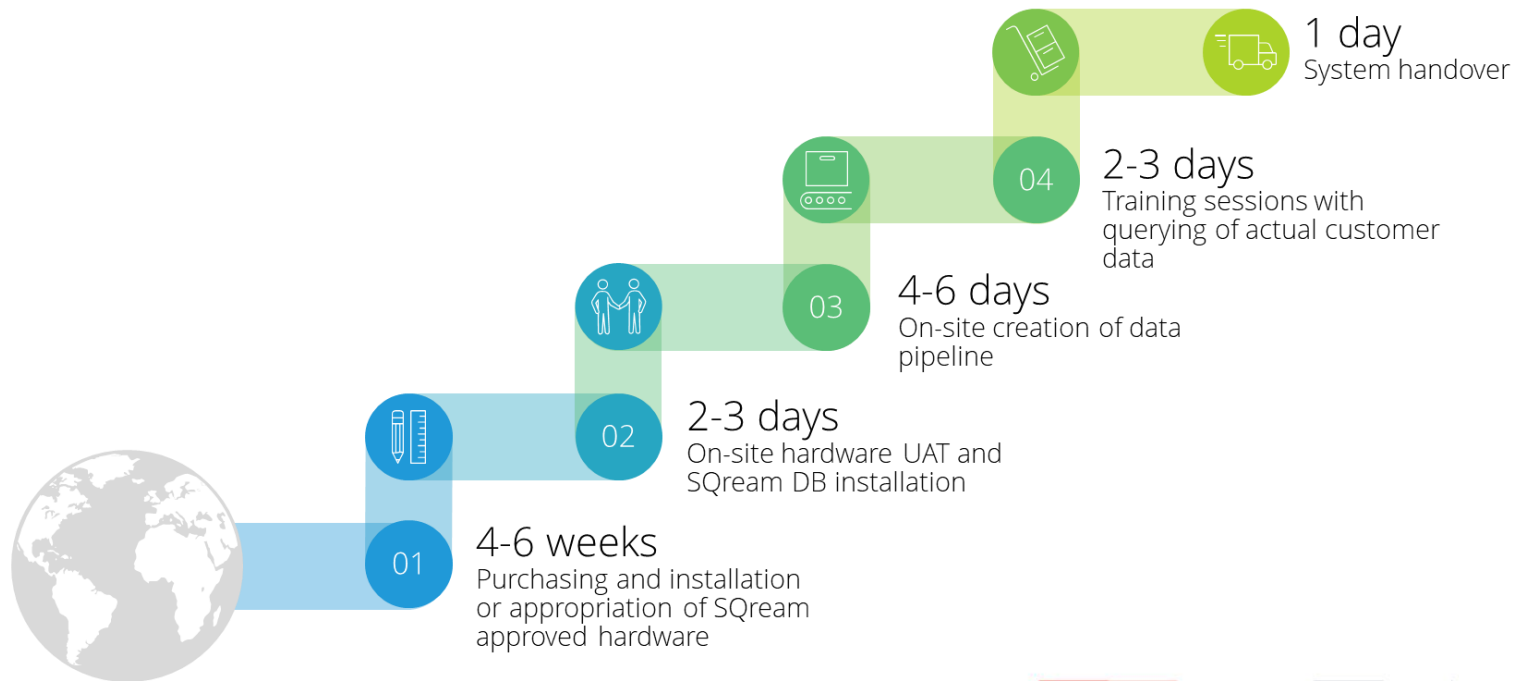
hi tech company deepens historical analytics with SQream DB

Speeding up HP ArcSight with a faster, easier to use GPU-powered analytics database

130M events / day = **8TB** / year



Partner role in Typical Implementation Timeline





"SQream and Orange demonstrate x100 cost performance removing limits of databases."

Pascal Déchamboux, Director of Software Orange Corporate IT



"We saw a tremendous cost effective opportunity to obtain comprehensive analytic abilities we were not able to do before SQream."

RF Group Leader, Cellcom



"We are monetizing much better our data and algorithms with the massive scalability and performance of SQream DB."

Andy Das, CTO and Co-founder



"SQream is helping us to cut years of cancer research on large genomic datasets."

Prof. Gideon Rechavi, Head of Cancer Research, Sheba Medical Center



"SQream DB allows ACL's users to gain insight into their activities faster than before, increasing productivity, with simplified maintenance and lower costs."

Ajit Singh, Sr. VP Engineering, ACL Mobile

Always LOOK for the DIGITAL MASTERY TRANSFORMER who can:

- ✓ identify the best digital tools for your needs
- ✓ manage digital risks for your business continuity
- ✓ design an actionable plan to optimize your resources
- ✓ offer valuable insights on your infrastructure potential
- ✓ give a broader perspective to achieve your business objectives
- ✓ support & train your IT specialists to empower new technologies





Let's us drive mastery
into your digital transformation

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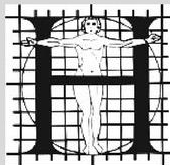


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by enabling massive data analytics



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