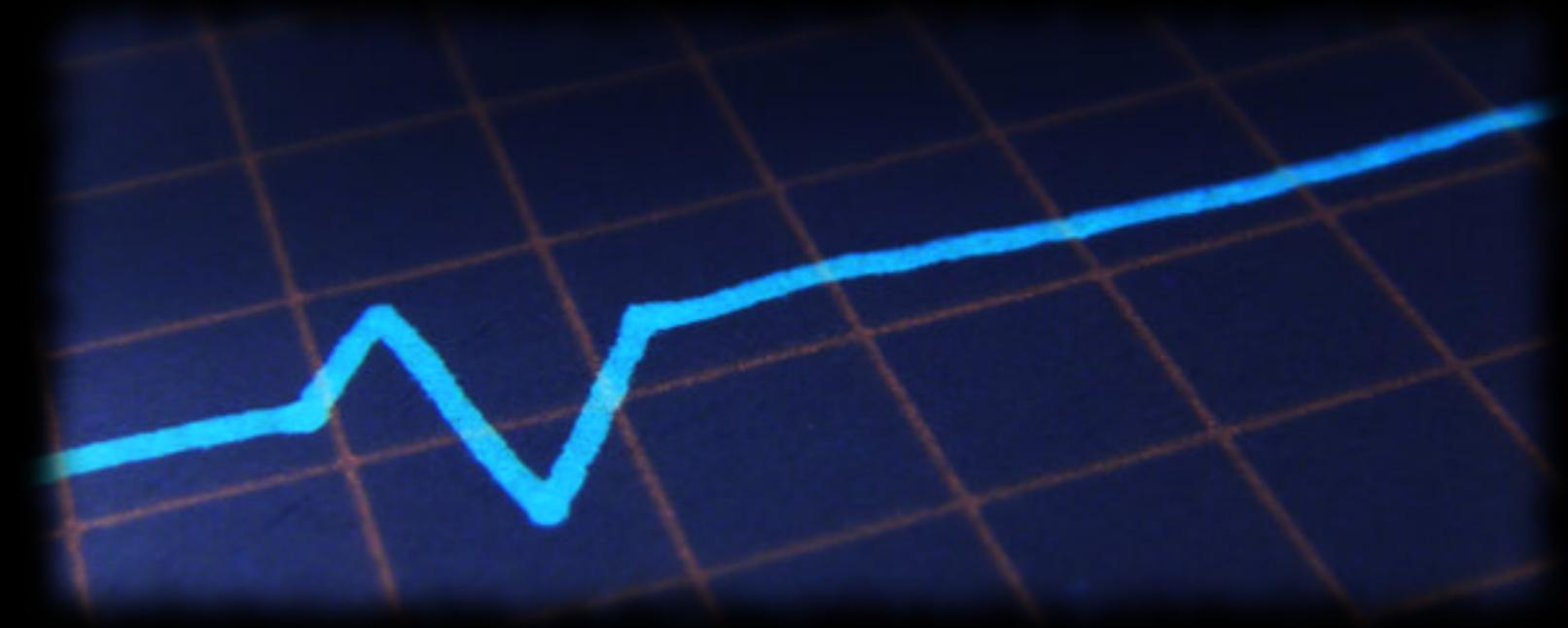


OpenTSDB

A Distributed, Scalable, Time Series Database

“Monitoring at an unprecedented level of granularity”

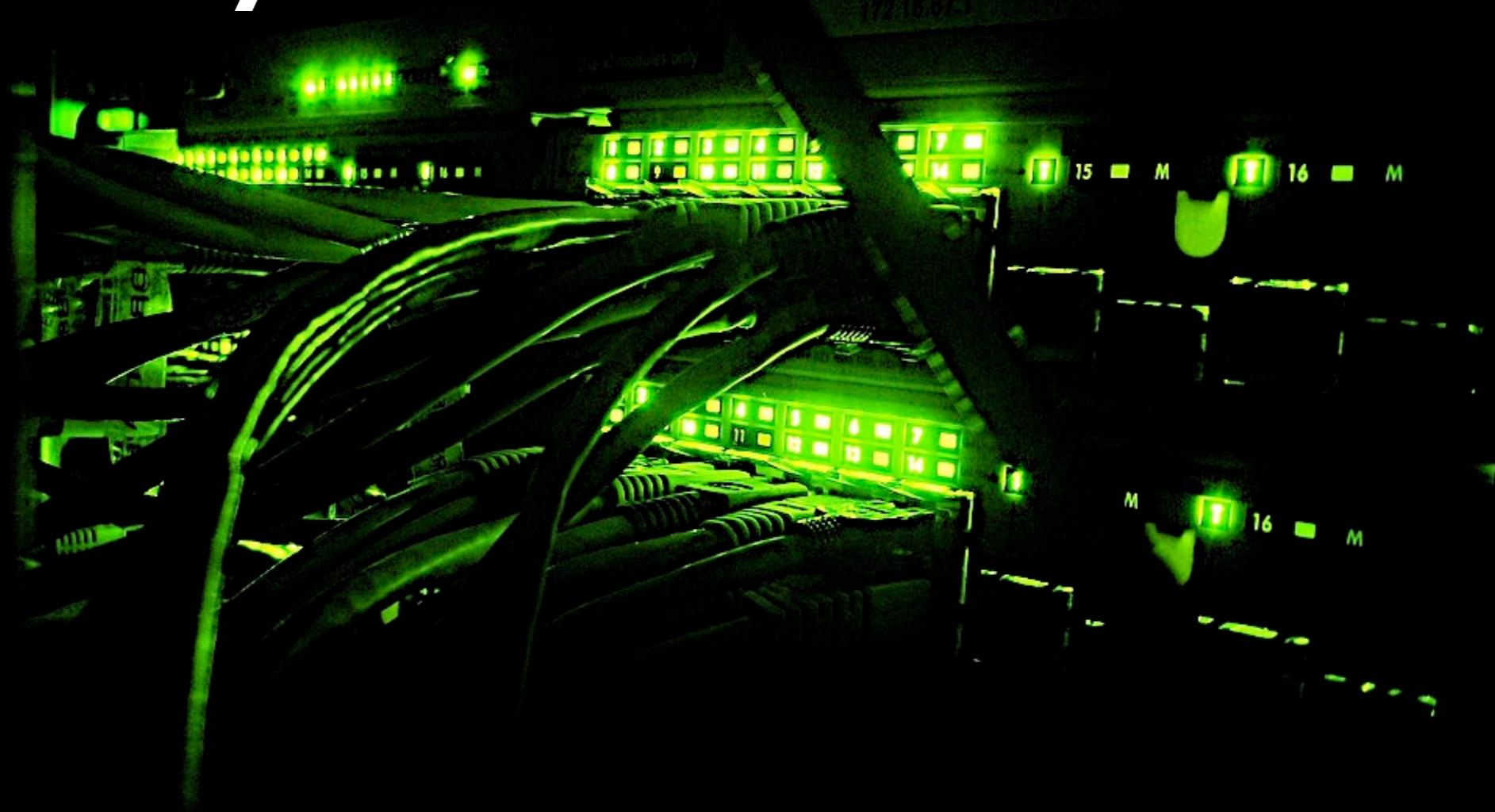


Benoît “tsuna” Sigoure
tsuna@stumbleupon.com

Where's my Paradigm Shift?



Get Real-Time Data from your Infrastructure



Working at Scale



Finding needle in haystack by Bindaas Madhavi

No SPoF



HBase

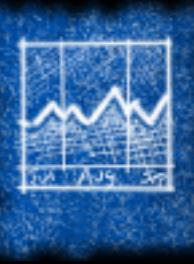
Distributed

Scalable

Reliable

Efficient



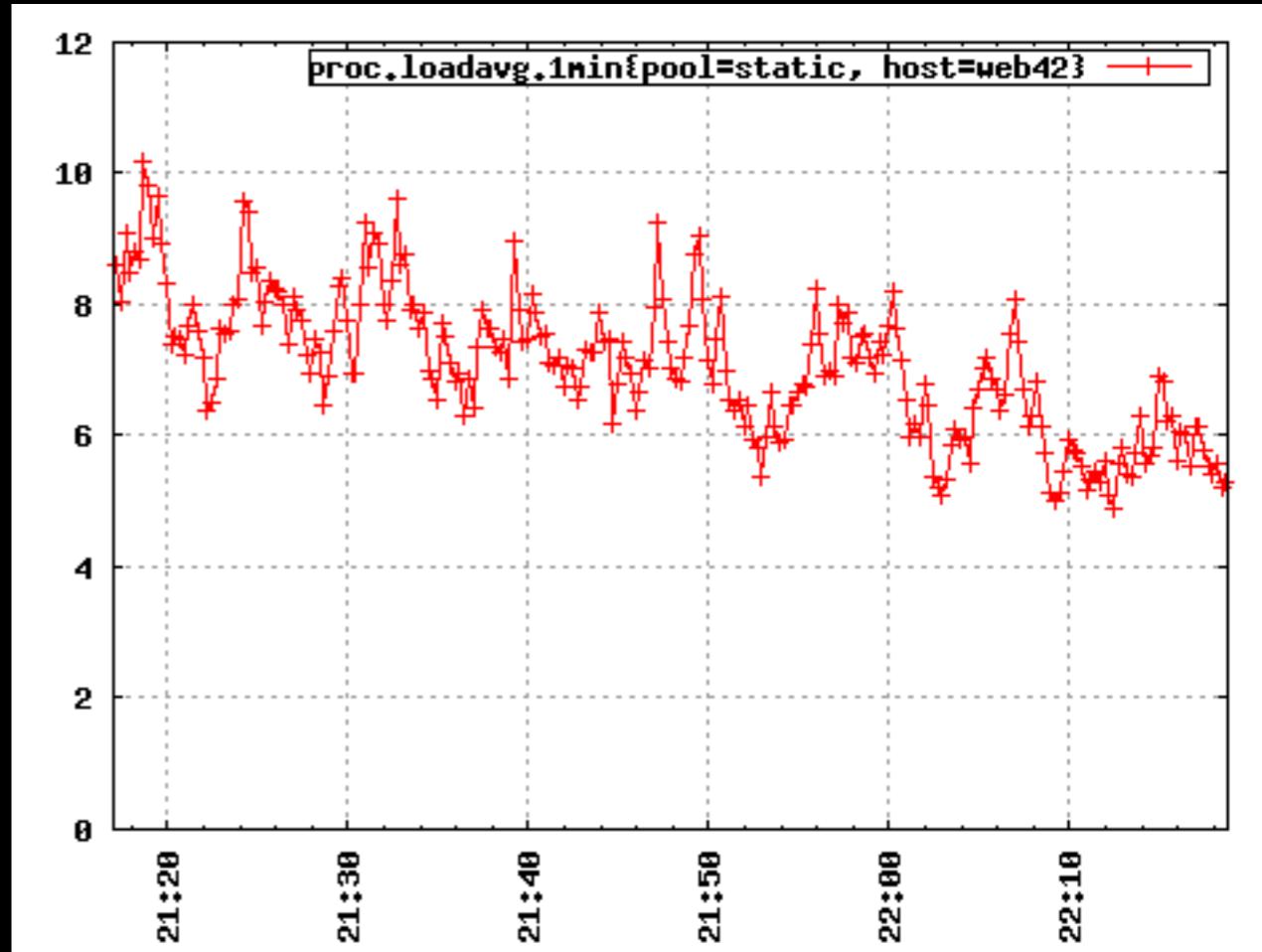


Design Goals

- Distributed storage of monitoring data
- No Single Point of Failure
- Pulling custom graphs must be trivial & fast
- Scale to:
 - Thousands of machines
 - Many billions of data points

Key concepts

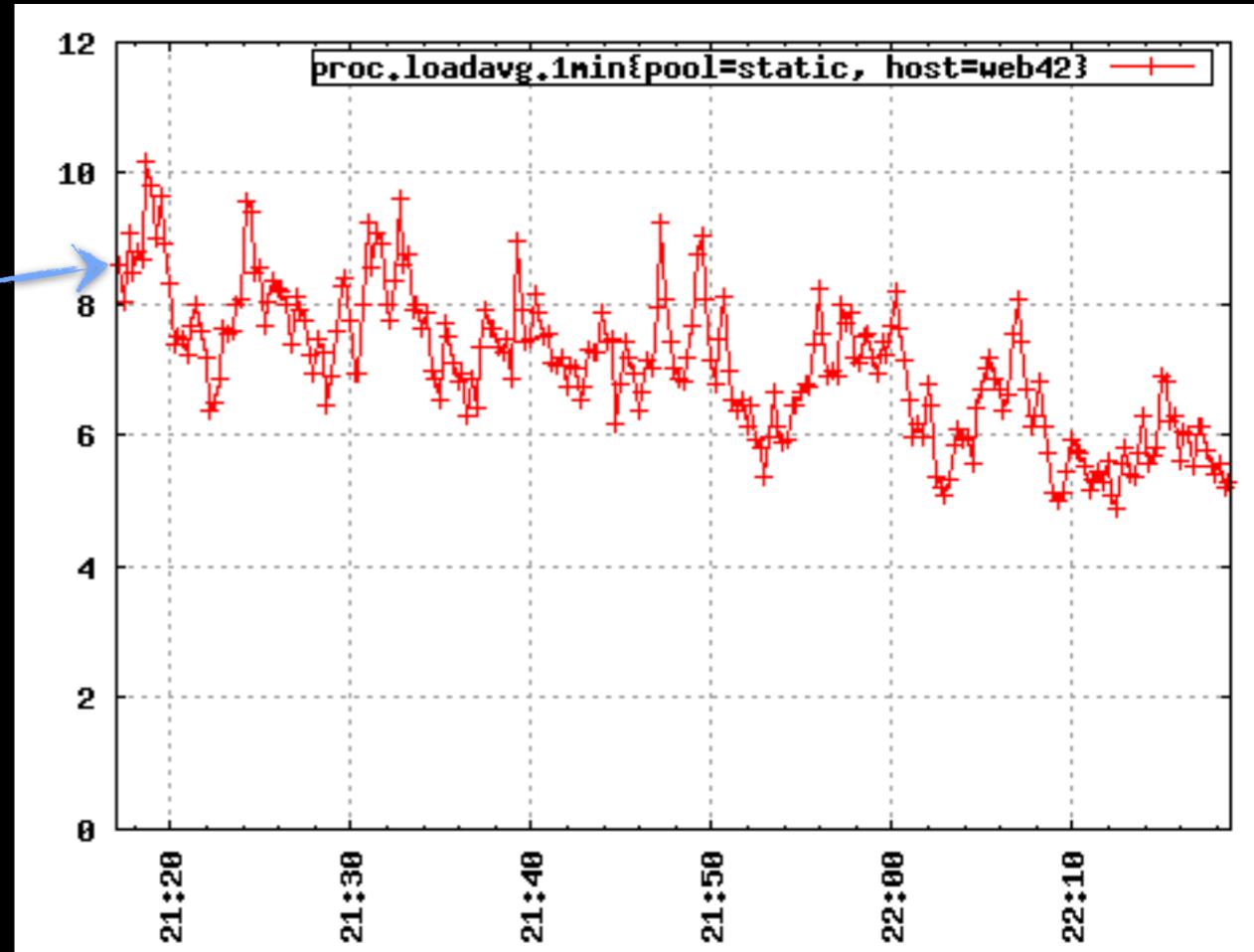
- Data Points
(time, value)
- Metrics
proc.loadavg.1m
- Tags
host=web42 pool=static
- Metric + Tags = Time Series



```
put proc.loadavg.1m 1234567890 0.42 host=web42 pool=static
```

Key concepts

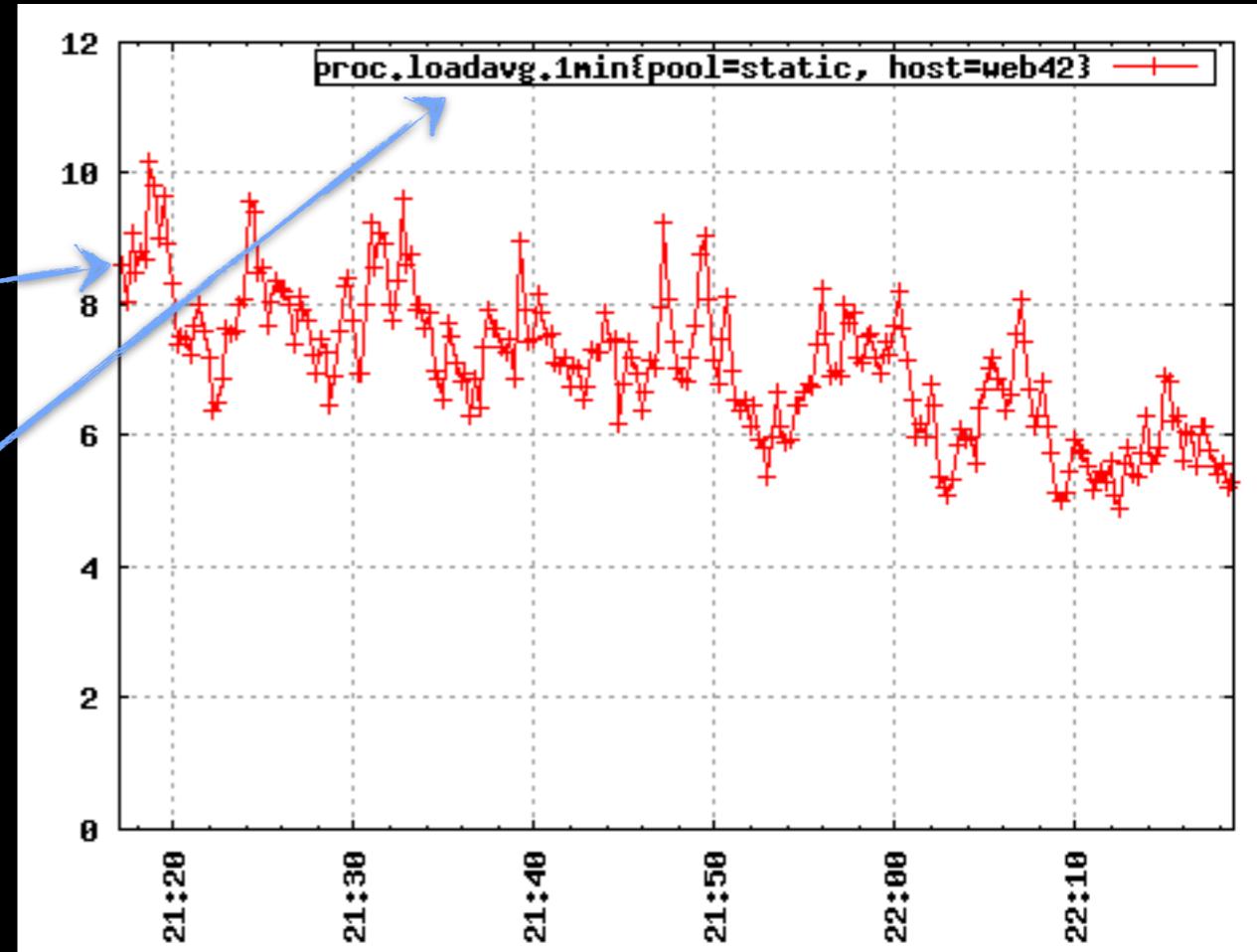
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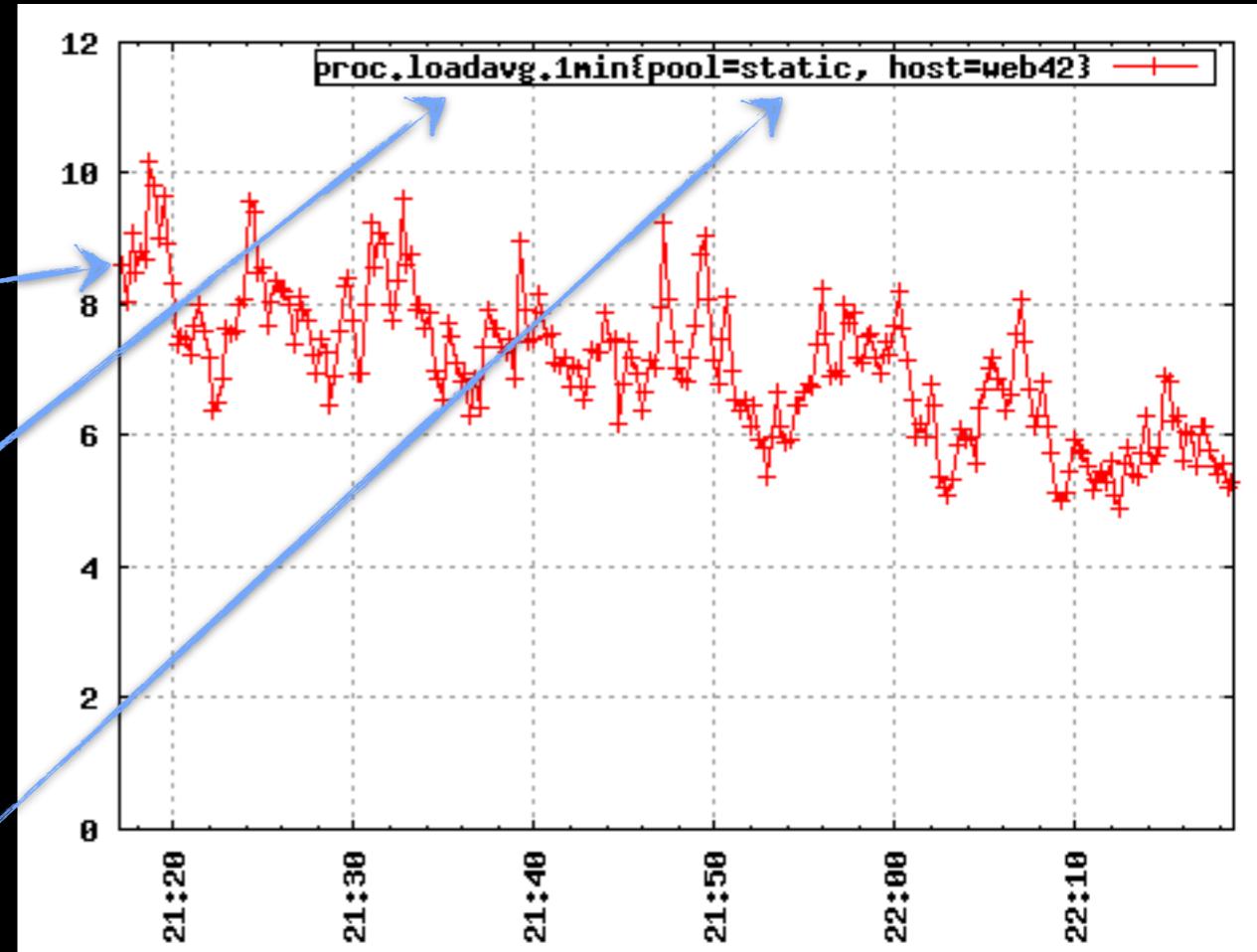
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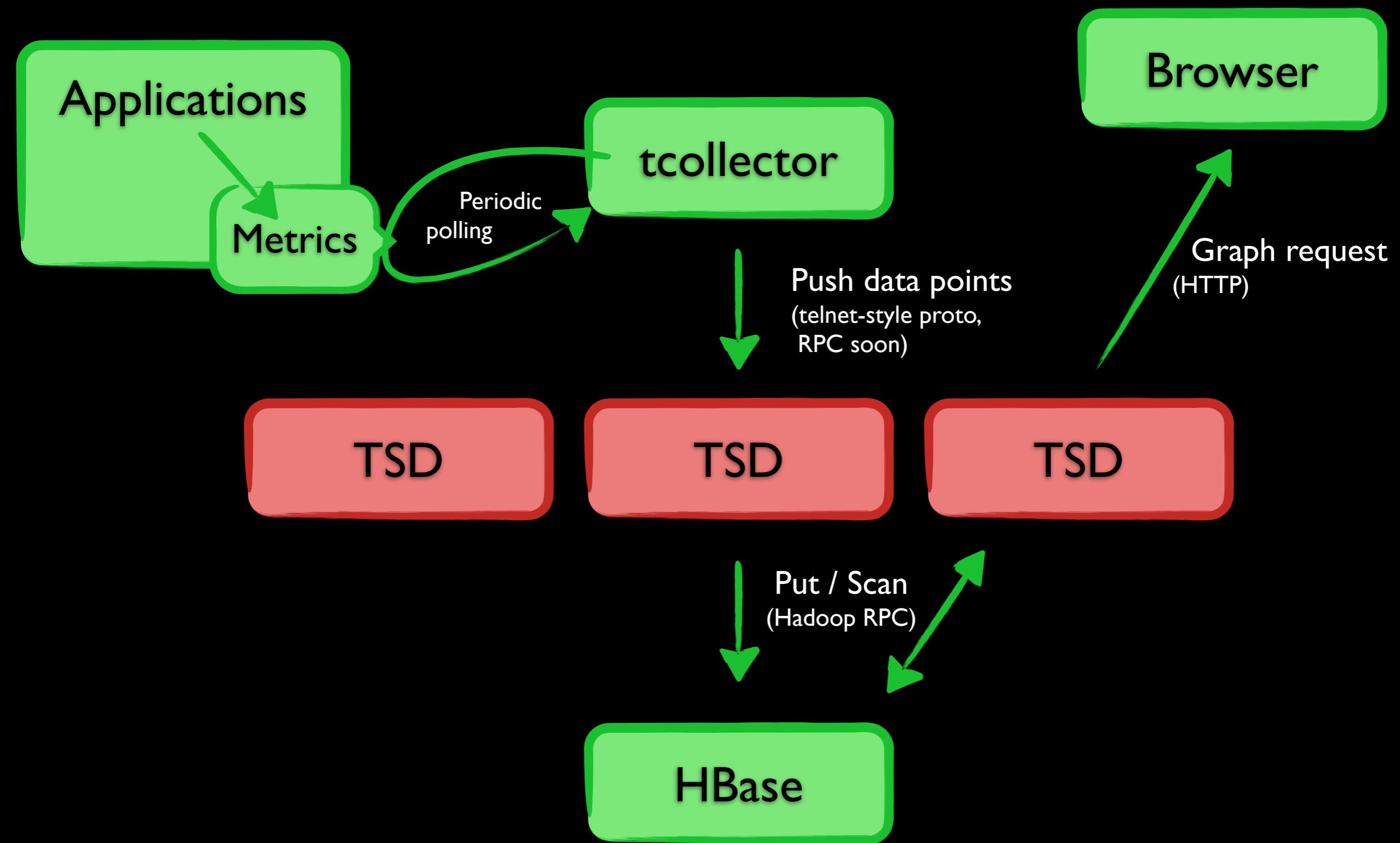
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```

The Big Picture™



12 Bytes Per Datapoint



4TB per year for 1000 machines

OpenTSDB @



| 150 Million Datapoints/Day

in a typical datacenter

Demo Time!



Set it up in 15 minutes

With zero prior experience

- JDK + GnuPlot 1 minute (1 command)
- Single-node HBase 4 minutes (3 commands)
- OpenTSDB 5 minutes (5 commands)
- Deploy tcollector 5 minutes

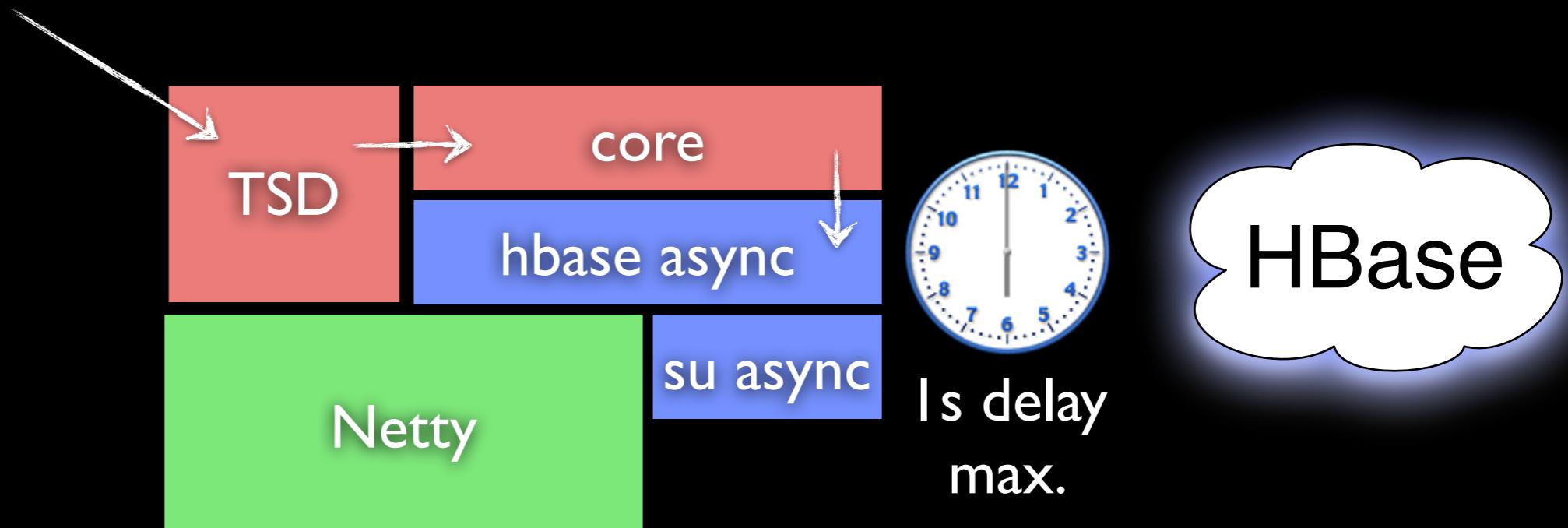
Under the Hood



Local Disk
(cache)

Under the Hood

put proc.loadavg.1m 1234567890 0.42 host=web42 pool=static



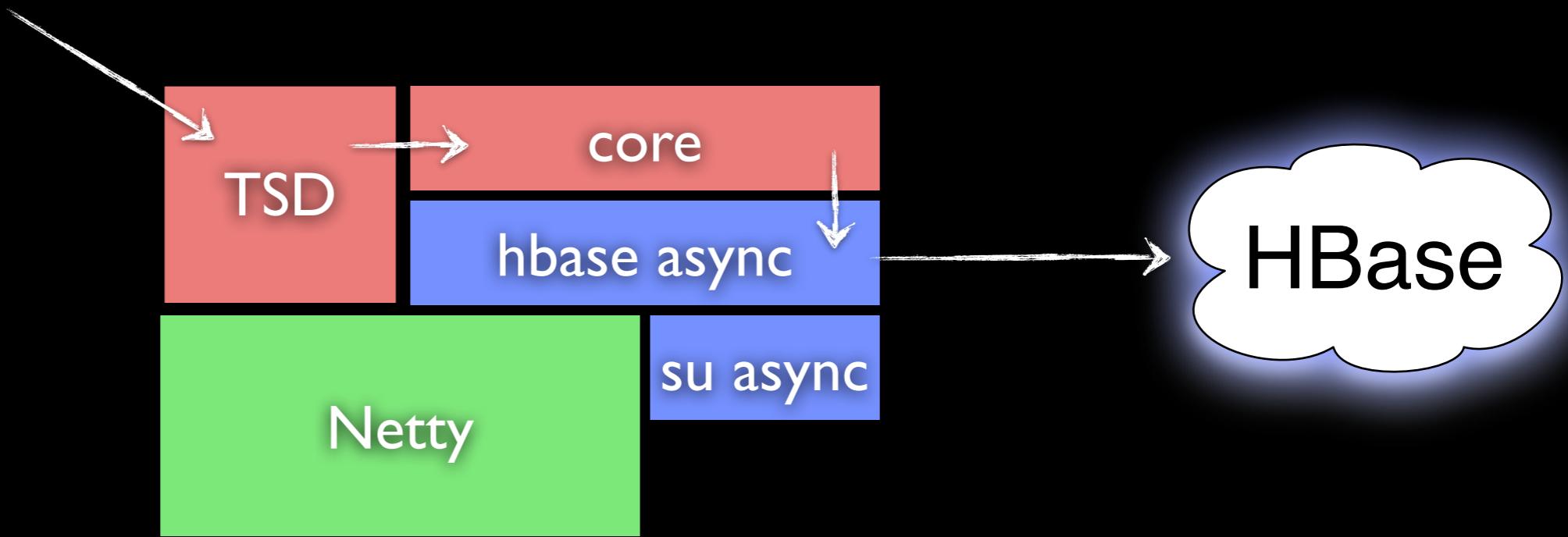
Local Disk
(cache)

Write Path

>2000 data points / sec / core

Under the Hood

```
put proc.loadavg.1m 1234567890 0.42 host=web42 pool=static
```

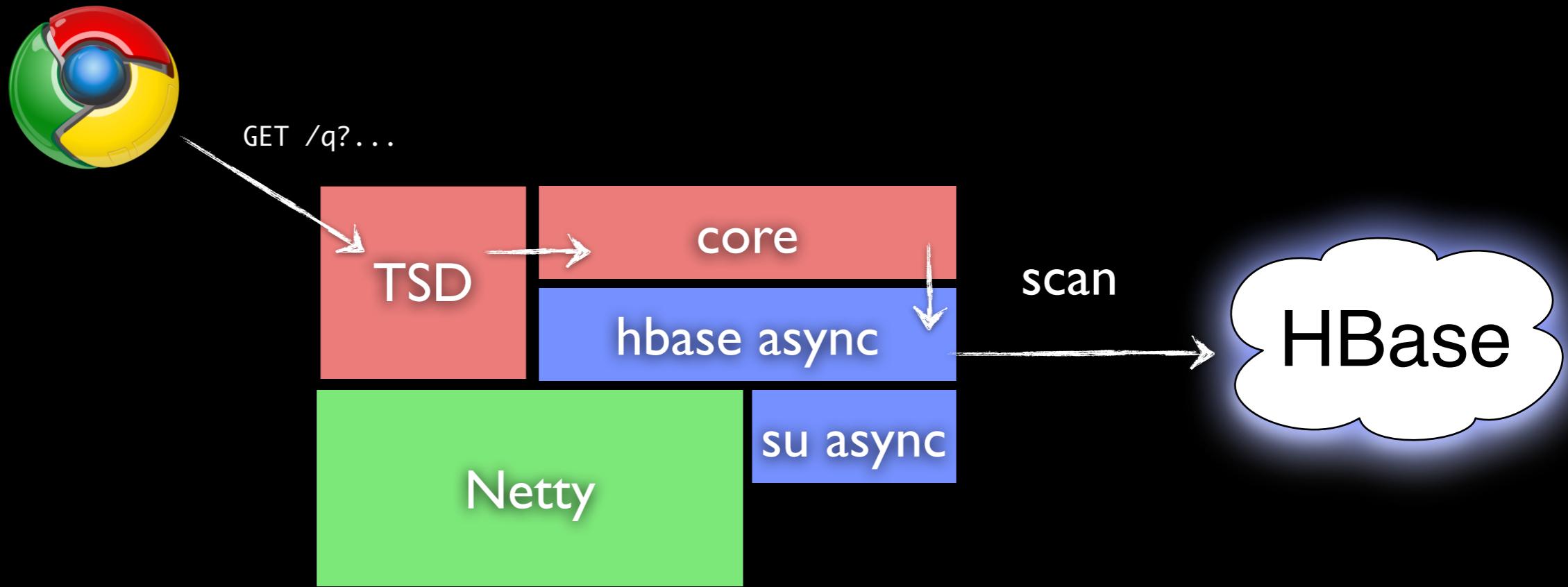


Local Disk
(cache)

Write Path

>2000 data points / sec / core

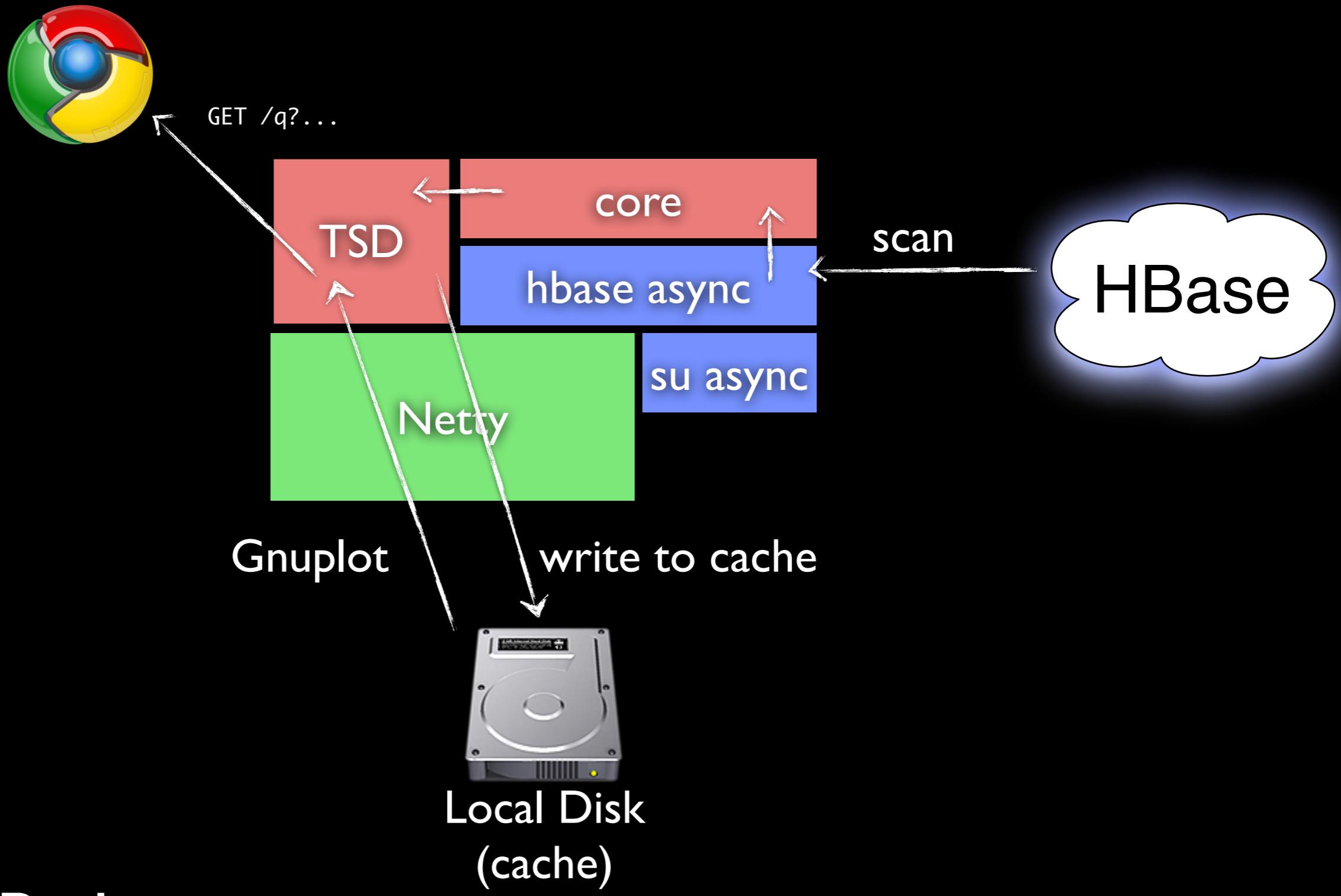
Under the Hood



Local Disk
(cache)

Read Path

Under the Hood



100% Natural, Organic
Free & Open-Source



¿ Questions ?

opentsdb.net

Benoît “tsuna” Sigoure
tsuna@stumbleupon.com

Table:
tsdb-uid

Inside HBase

Row Key	Column Family: name			Column Family: id		
	metrics	tagk	tagv	metrics	tagk	tagv
0 0 1		host	static			
0 5 2	proc.loadavg .1m					
host					0 0 1	
proc.loadavg. 1m				0 5 2		

0 | 5 | 2



put proc.loadavg.1m 1234567890 0.42 host=web42 pool=static

0 | 0 | 1 | 0 | 2 | 8 | 0 | 4 | 7 | 0 | 0 | 1

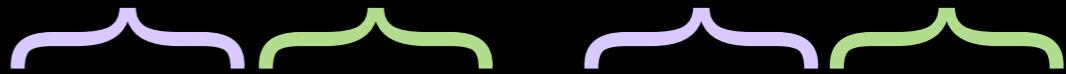


Table:
tsdb

Inside HBase

Row Key	Column Family: t					
	+0	+15	+20	...	+90	+600
	0.69		0.51		0.42	
	0.99	0.72				

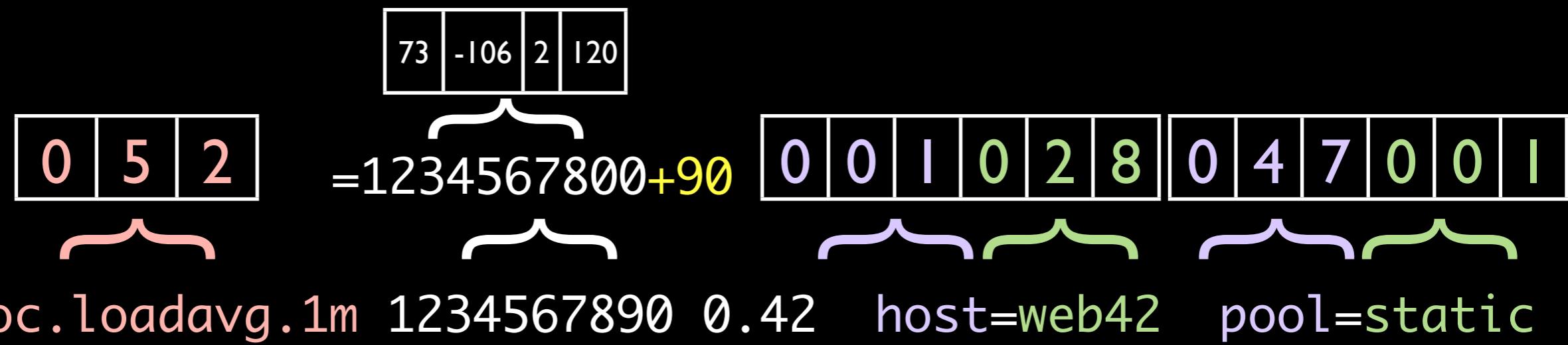


Table:
tsdb

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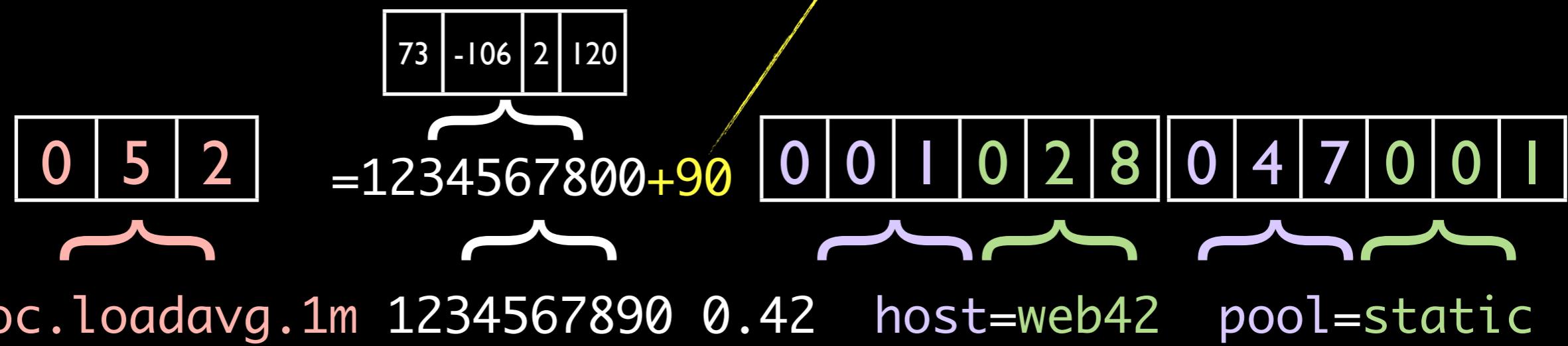
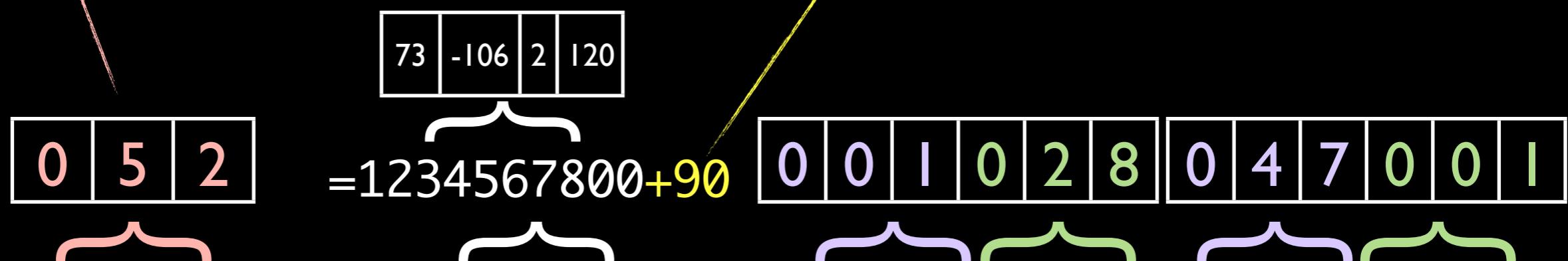


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tsdb

Inside HBase

