A storage tale from the 3rd world of IT

A story about real world and shadow storage

JUKU.consulting

Independent Analyst/Advisor

20+ years experience

I started with Assembler

Founder of TECHunplugged

Amateur boatbuilder

Weekend sailor

Angler

Juku.it

@esignoretti

... and the other one's a fish!

TECH.UNPLUGGED

I live in the third world of IT

Strategy (and tactics)

We live in an All-Flash world…
Really?!

	GB	$	$/GB	$/IOPS	IOPS/GB
2,5” SAS 900GB HDD	900	350	0,39	2,30	0,17
2,5” SAS 800GB SSD	800	2440	3,05	0,049	62,5
3,5” SATA 6TB Enterprise	6000	298	0,049	2,98	0,016
3,5” SATA 4TB Consumer	4000	150	0,037	1,87	0,02

HGST price list March 2015

We live in an All-Flash world…
Updated!

	GB	$	$/GB	$/IOPS	IOPS/GB
2,5” SAS 0.8TB SSD*	800	1699	2,12	0,021	100
3,5” SATA 8TB SMR*	8000	239	0,029	2,39	0,012

*Amazon 9/16, Sandisk Lightning Ascend Gen.II Vs. Seagate Archive HDD 8TB – FYI 4TB Optimux Max = 1,61 $/GB

$3,05 → $2,12 = -30%

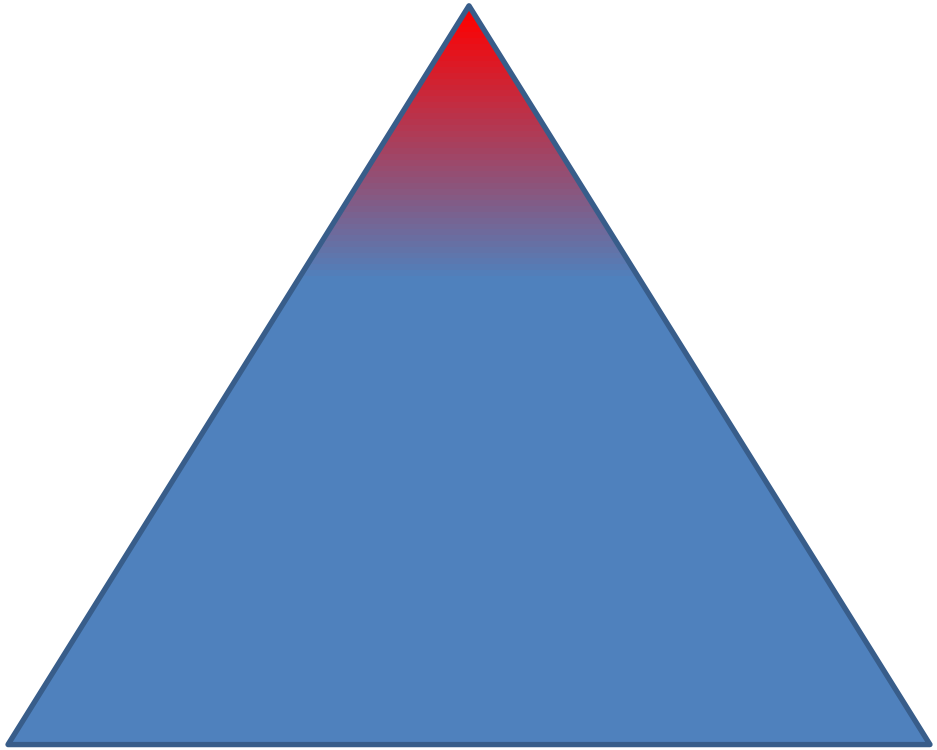
$0,037 → $0,029 = -20%

FYI LTO7: 6TB is 0,020 $/GB, 15TB = 0,008 $/GB

And we are piling up a lot of Trash!

Where are we going?

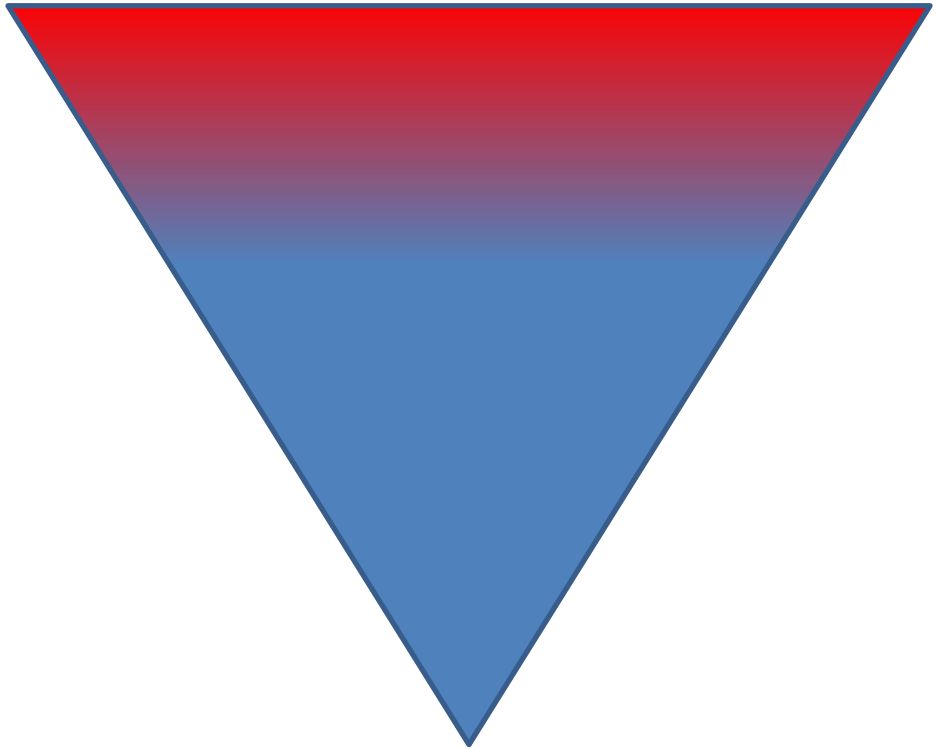
Storage as we usually represent it



hot

cold

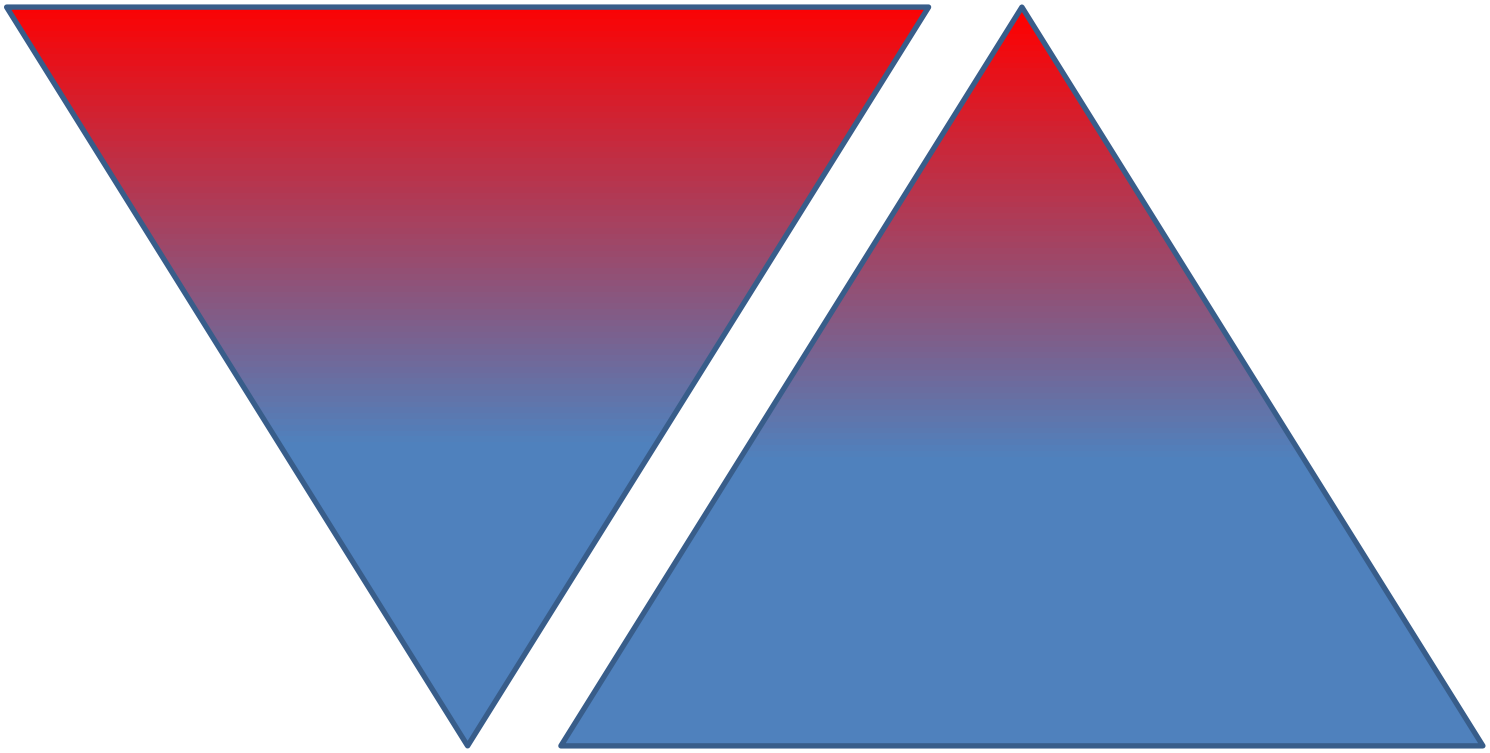
Storage when we buy it



$$$$$$

$

What does it really mean?



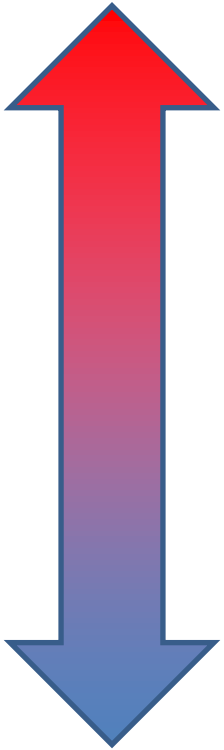
10/20%
capacity

50%
$$$

What do we ask to storage?

Primary

Latency



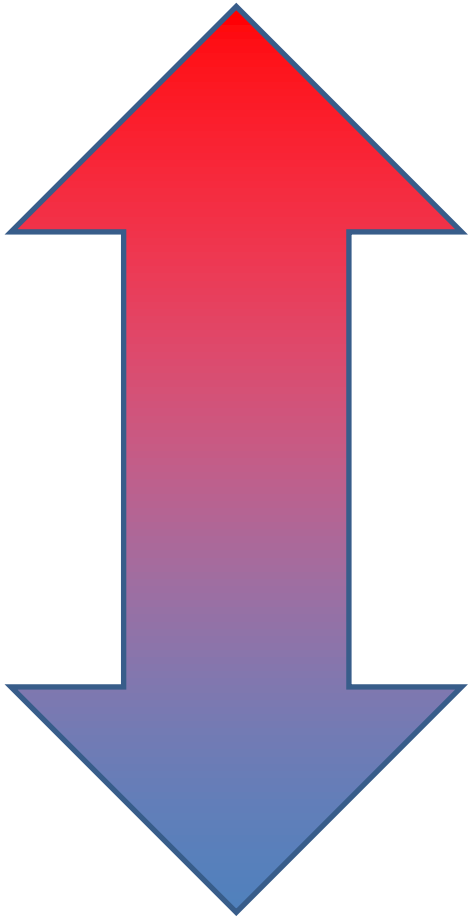
Secondary

Capacity

Local
Performance

Distributed
Performance

How do we get it?



Again, tape is not dead!

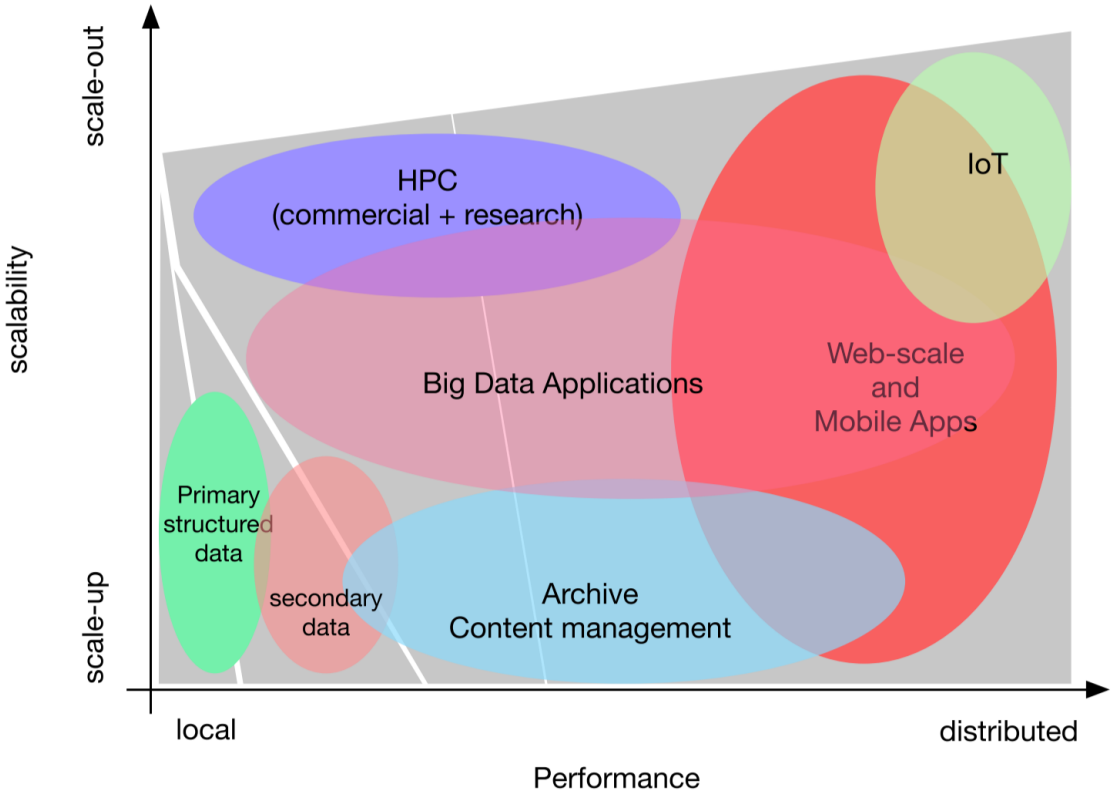
“76000PB Total #LTO #tape media capacity shipped in 2015, an increase of 17.8% over prior year.”

http://buff.ly/1VYds4V

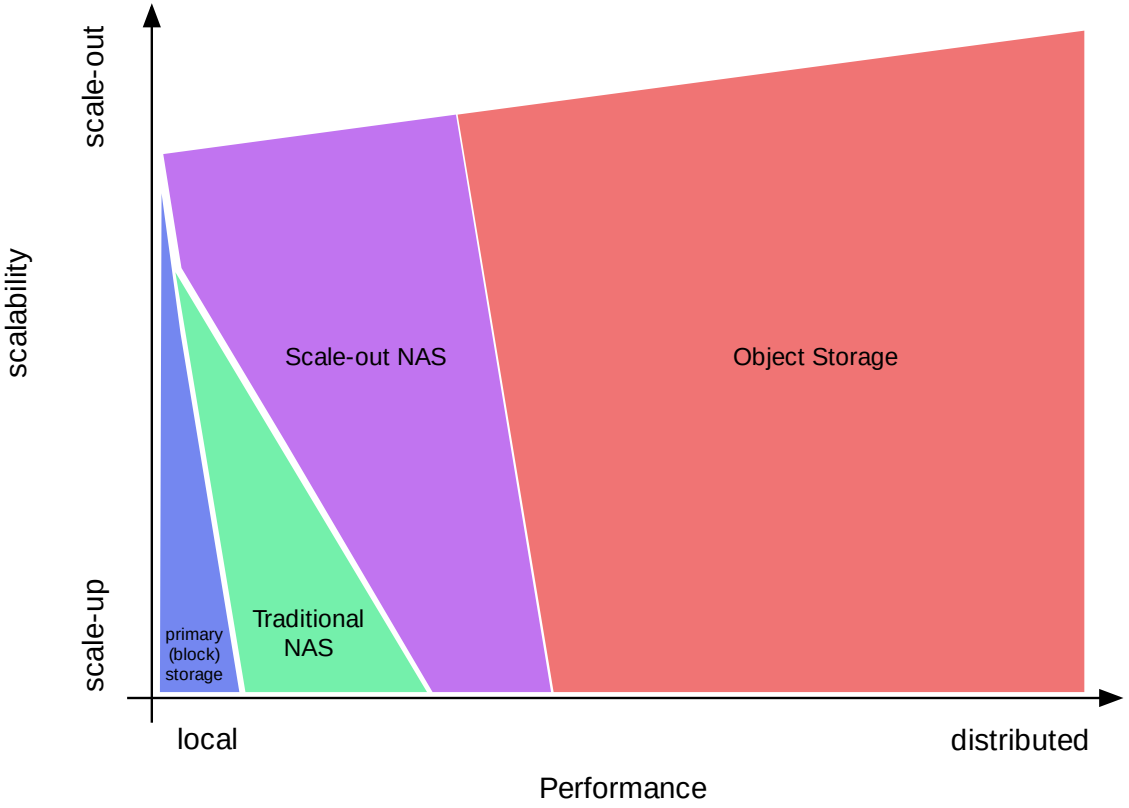
Storage as we (traditionally) map it

T0 T1 T2 T3

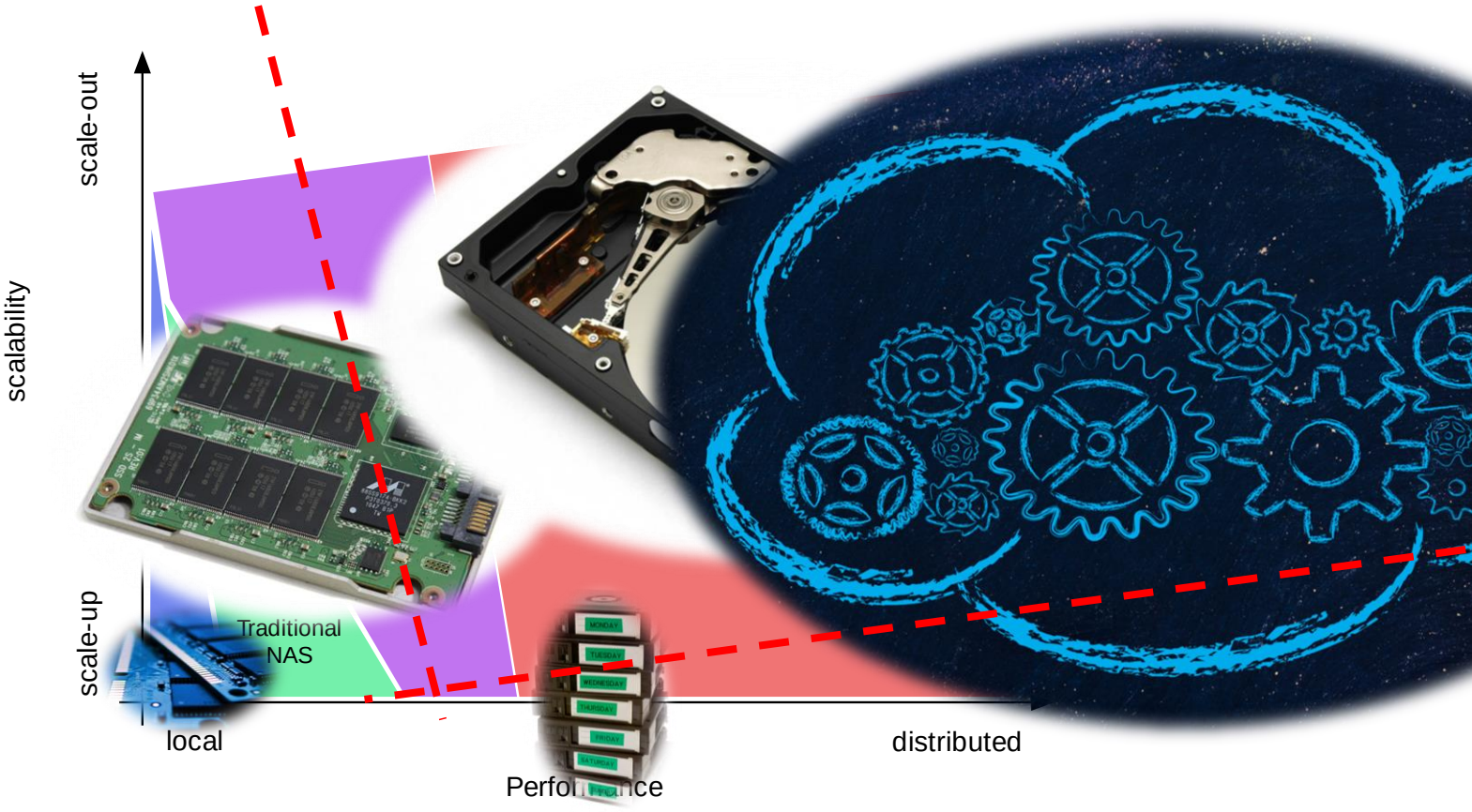
Storage as it should be mapped



Storage as it should be mapped



Mapping media (today)



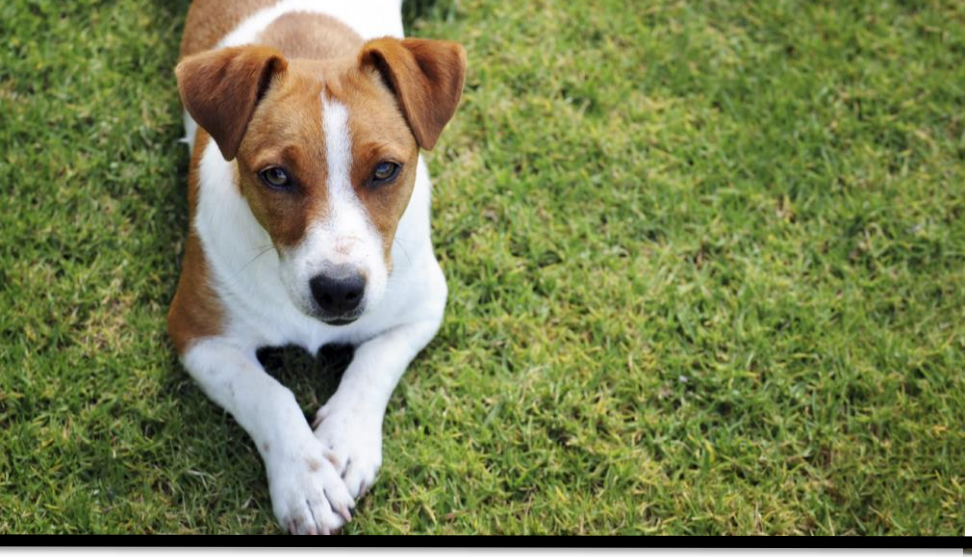
Where is the story?

THE UNITED STATES OF AMERICA
ONE DOLLAR
L 67005297 N
WASHINGTON, D.C.

$/GB

CENT

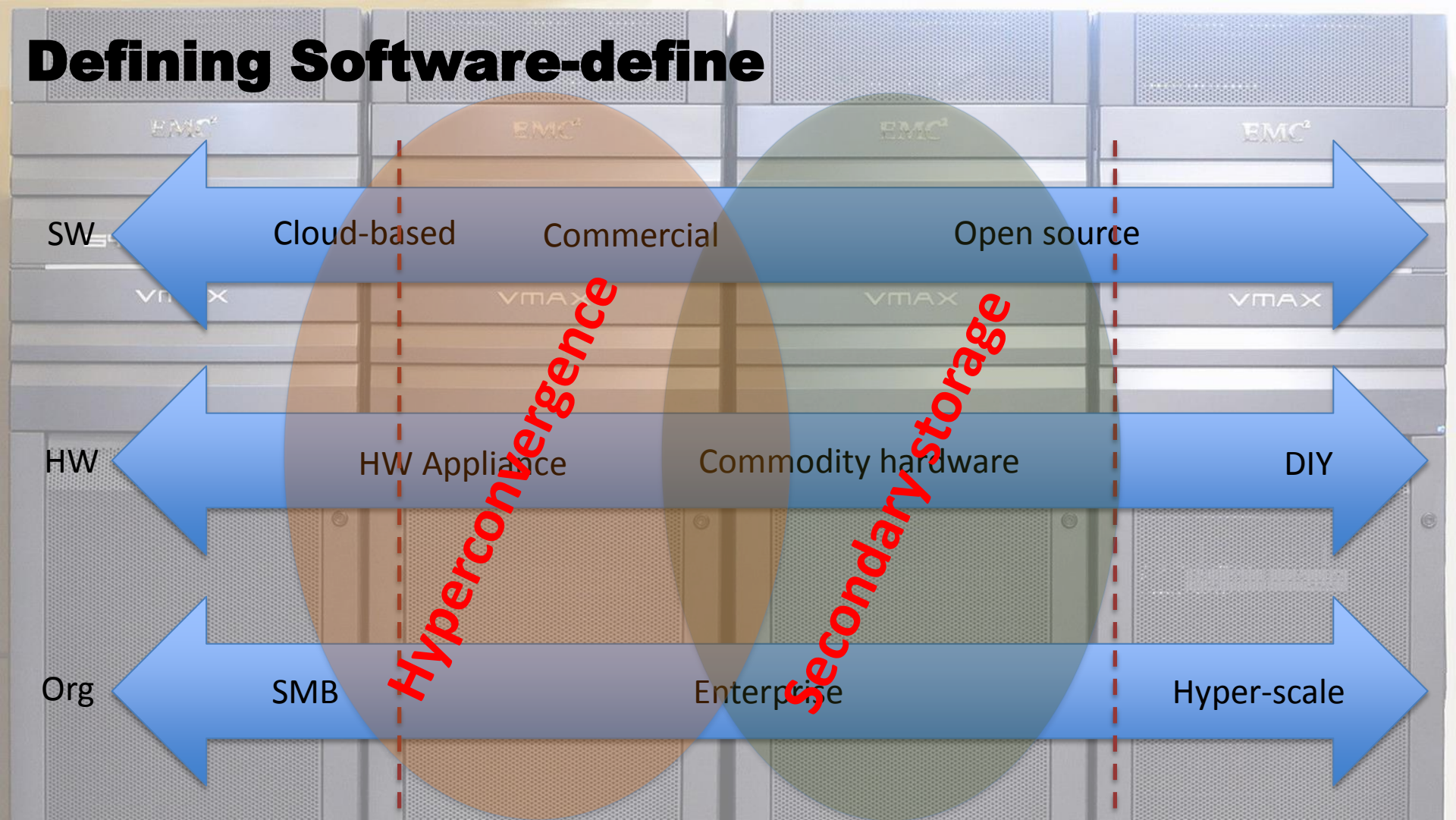
cent/GB



TBs/SysAdmin

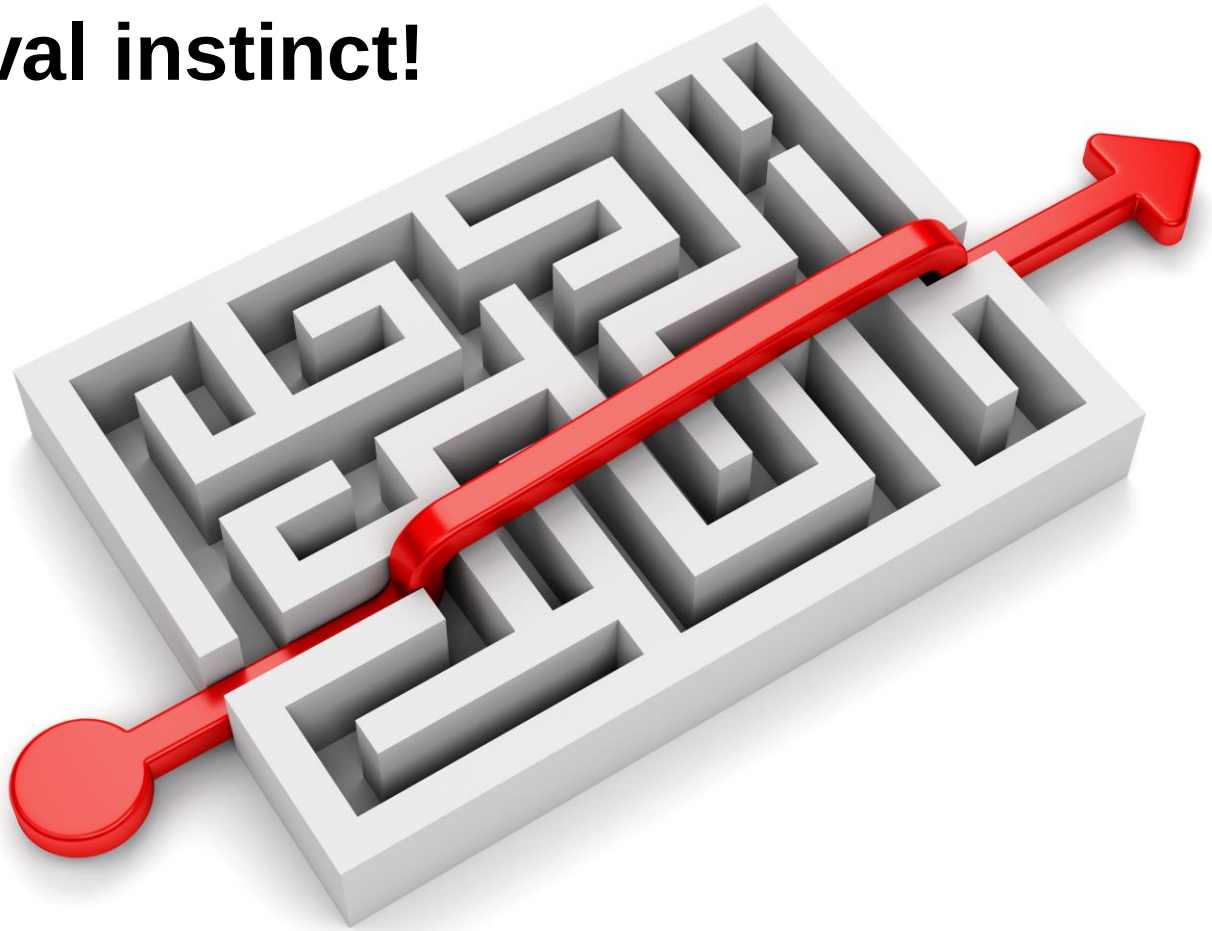
PBs/SysAdmin

Defining Software-define



Strategy?

No, survival instinct!



“800TB out of decommissioned servers”

Invisible or Shadow storage?

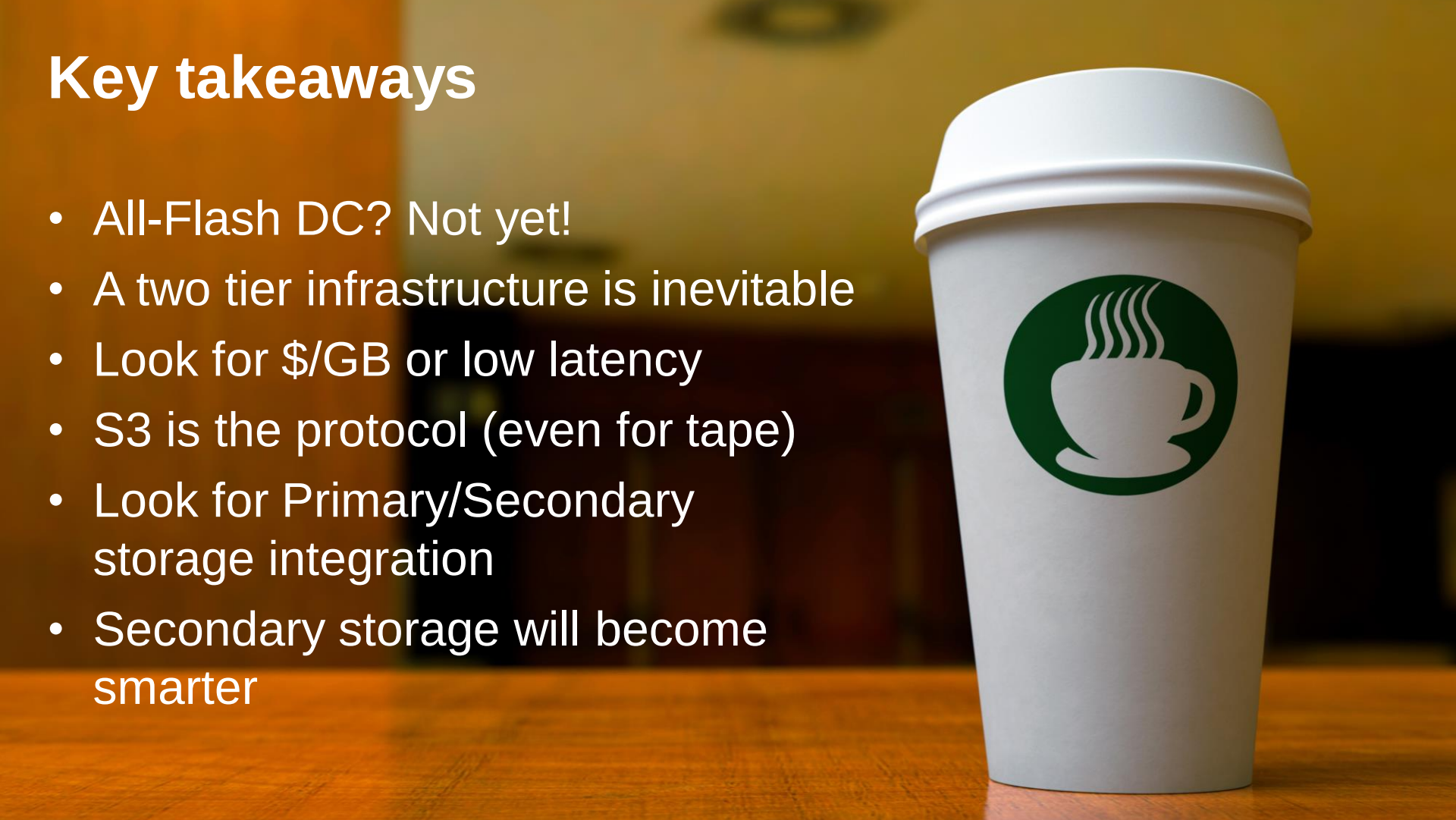
UNAWARE

I asked around…

Most OBS enterprise customers start well under 200TB!

Key takeaways

- All-Flash DC? Not yet!
- A two tier infrastructure is inevitable
- Look for $/GB or low latency
- S3 is the protocol (even for tape)
- Look for Primary/Secondary storage integration
- Secondary storage will become smarter



Thank you!

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