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15/04/2016

Multivendor Datacenters

Disaggregating network services

Who’s that dude?

- 2 years at Criteo
- Network Infrastructure Team Lead

Who’s that dude?

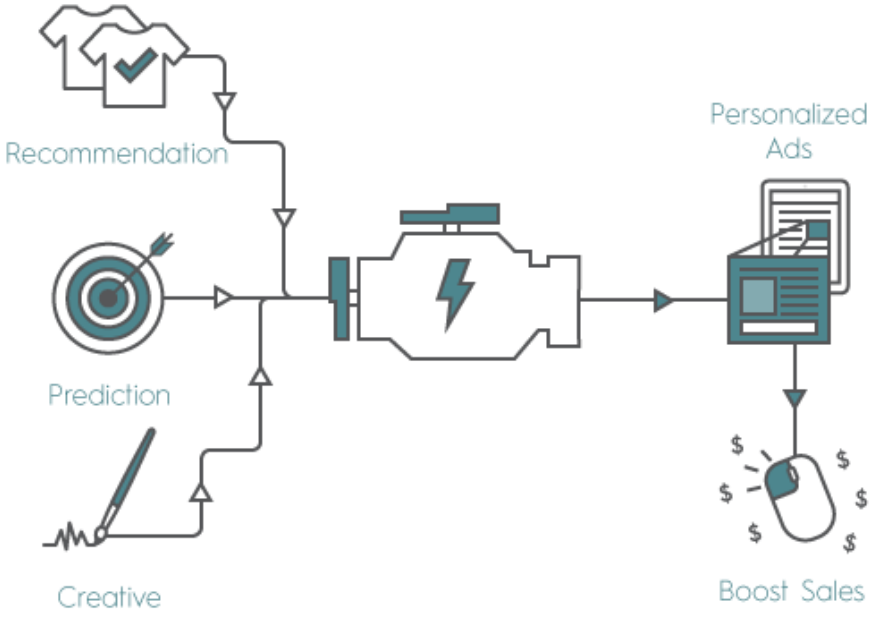
- 3 Missions:

- Network architecture & design
- Throwing out entrenched vendors
- Automate myself out of a job

About Criteo

Transforming digital advertising into a personal experience.

About Criteo



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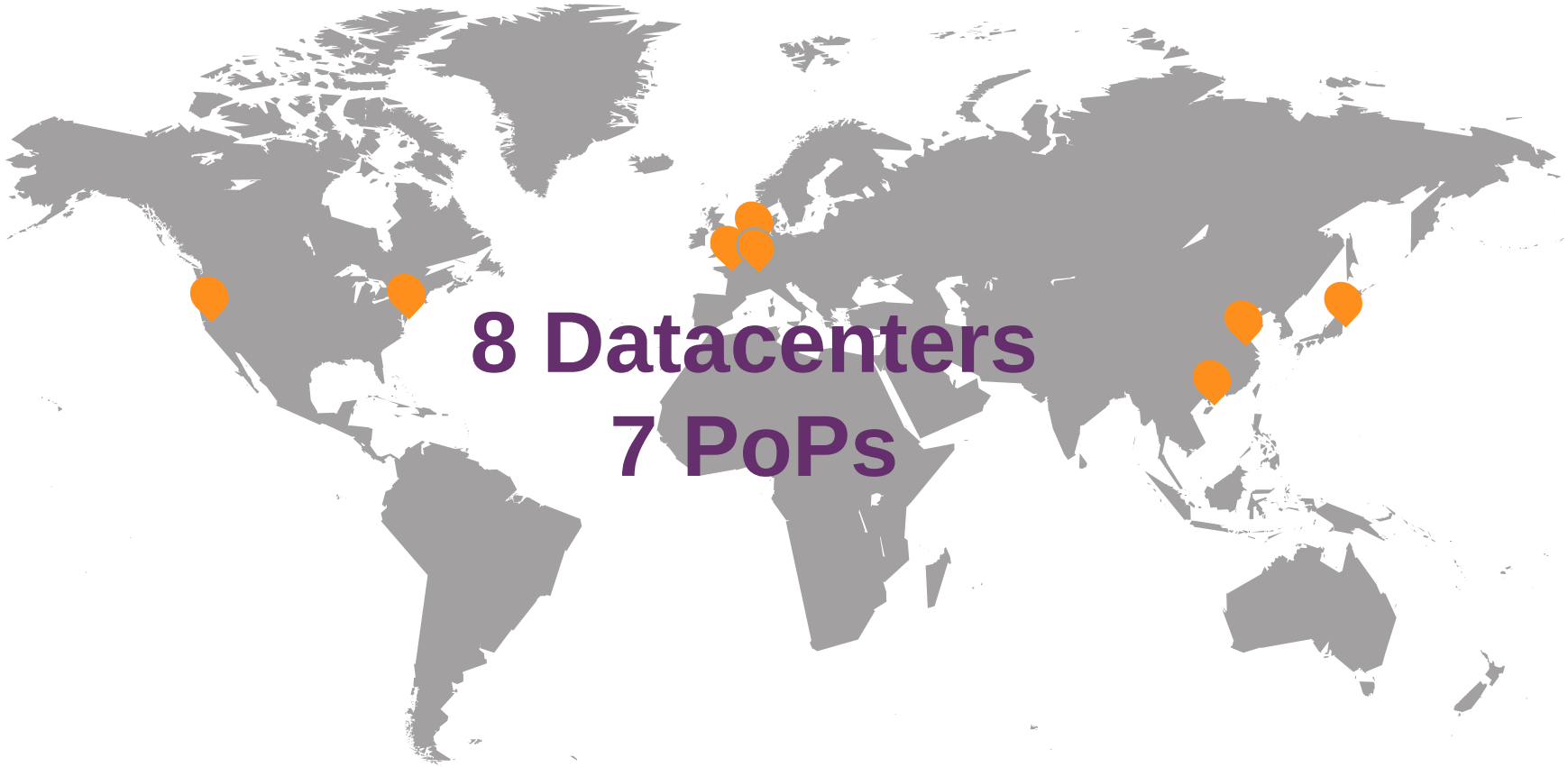

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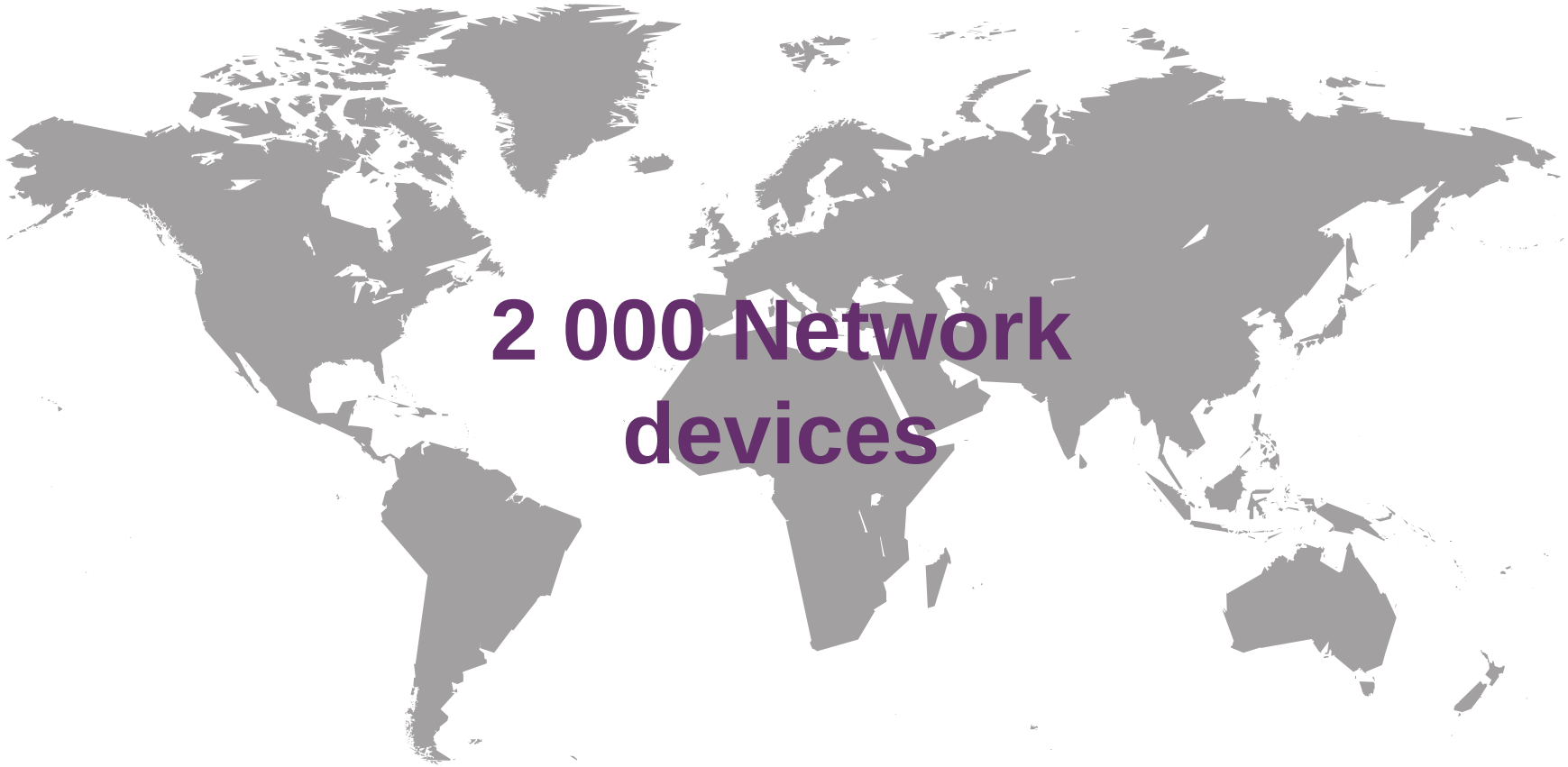

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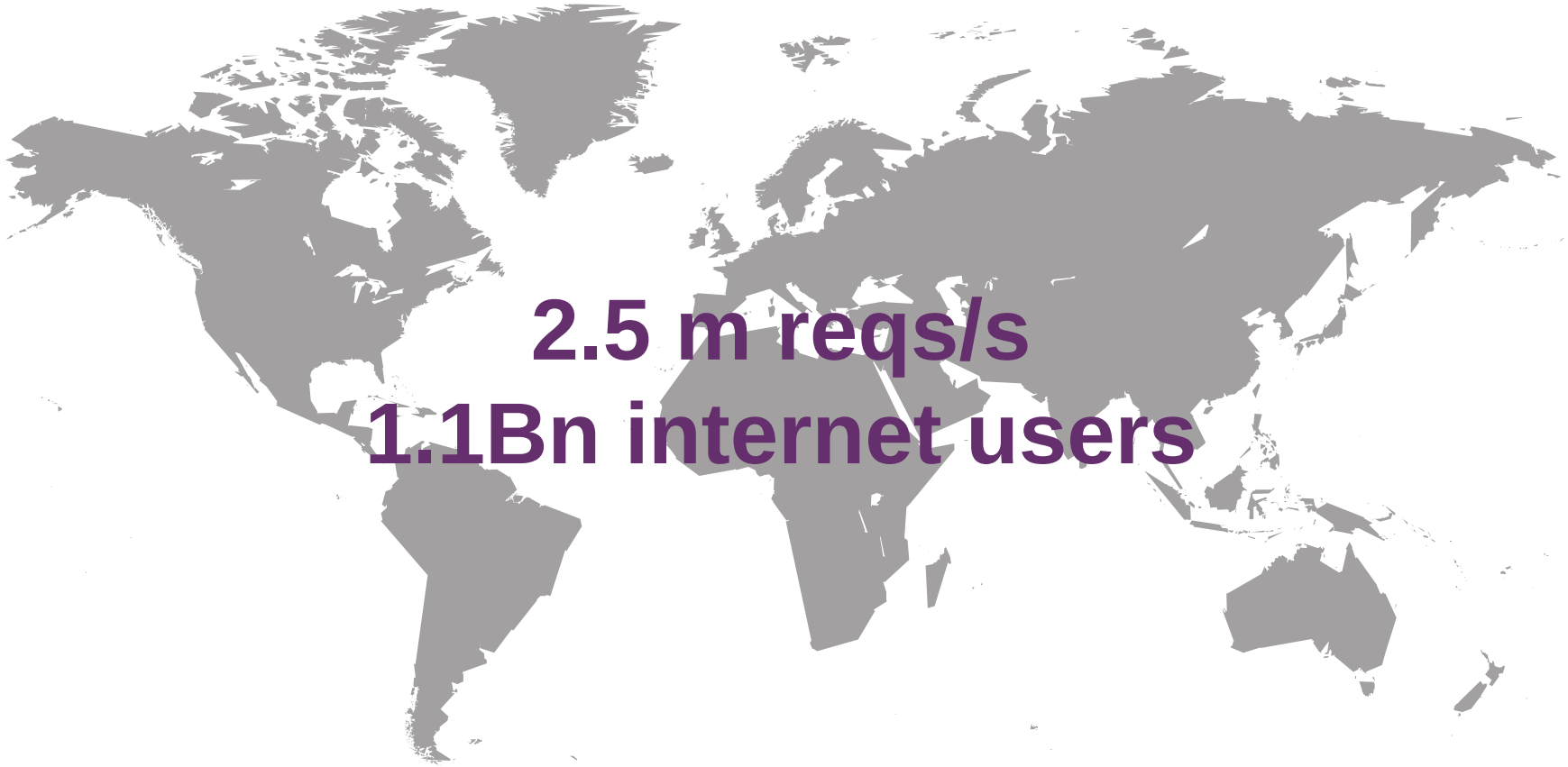

2.5 m reqs/s

1.1Bn internet users

Multivendor in the DC

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What usually happens when you have one vendor

- Build RFP
  - Consult
  - Choose

What usually happens when you have one vendor

Choose your dream Hardware

Send money to the Vendor

Sales moves to the Bahamas

Meanwhile…

- Please upgrade
- Known bug, goto 1
- Yeah, that’s a feature

How do you solve this problem

- Story time! How we built PA4

- Criteo's 2nd HPC cluster
- 40G non-blocking L3 Clos fabric

How do you solve this problem

- Design:
- Proprietary features do not save lives
- Find the smallest set of features possible
- IEEE and IETF are your friends

How do you solve this problem

- L3 Clos Fabrics
- One feature: BGP
- All the rest is useless

How do you solve this problem

- During the RFP process try to qualify at least 2 vendors

- People will say you're crazy:
- Twice the work, twice the problems

How do you solve this problem

- No vendor is used to this
- Most will work with you
- Some will spread rumours of unfairness

How do you solve this problem

- Be Transparent
- Brief your vendors on the qualification results
- Share anonymized scores

How do you solve this problem

Scoring table POD

feature	[redacted]	[redacted]	[redacted]	[redacted]
BGP	1	1	2	-1 (green)
LLDP	1	1	1	1
IPV4	1	1	1	1
IPv6	2	1	2	-2
SPAN	2 (rspan)	1 (simple)	2 (rspan)	2 (rspan)
Flow	2 (Sflow)	2 (sflow)	2 (Jflow)	2 (Sflow)
L2 overlay	2 (VxLan)	2 (VxLan)	2 (VxLan)	-2
API	2 (API -shell)	1 (API)	2 (XML-RPC -shell)	1 (XML API)
CLI	2	2	2	1 (hybrid)
Code Stability	0	0	0	0
Code maturity	1	1	2	-1
Auto Install	2 (ZTP)	2 (ZTP)	2 (ZTP)	-1 (dhcp)
Debugs	1	1	2	1
Documentation	1	-1	2	-1
User Base	1	1	2	-1
User Community	1	-1	2	-1
CPU	2 (x86)	0	2 (x86)	-1 (PPC)
redundant PS	2	2	2	2
1U	2	2	2	2
port capacity	2	2	2	2
Strong points	Deep Buffers automation	support	code maturity features	Price HPC experience
Weak points	Price	Documentation userbase only china		BGP code 09/2014
Total	**30**	**21**	**36**	**4**

Scores:

score	meaning
-2	unsupported
-1	low confidence
0	unknown
1	confidence
2	high confidence

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How do you solve this problem

- Chose the 2 best that fit your requirements
  - When you have time qualify more

- Give the power back to your purchasing department

Automation is key

- The only way this can work is through automation
  - If you use the CLI you will never scale

- CLI is the last resort when stuff is broken

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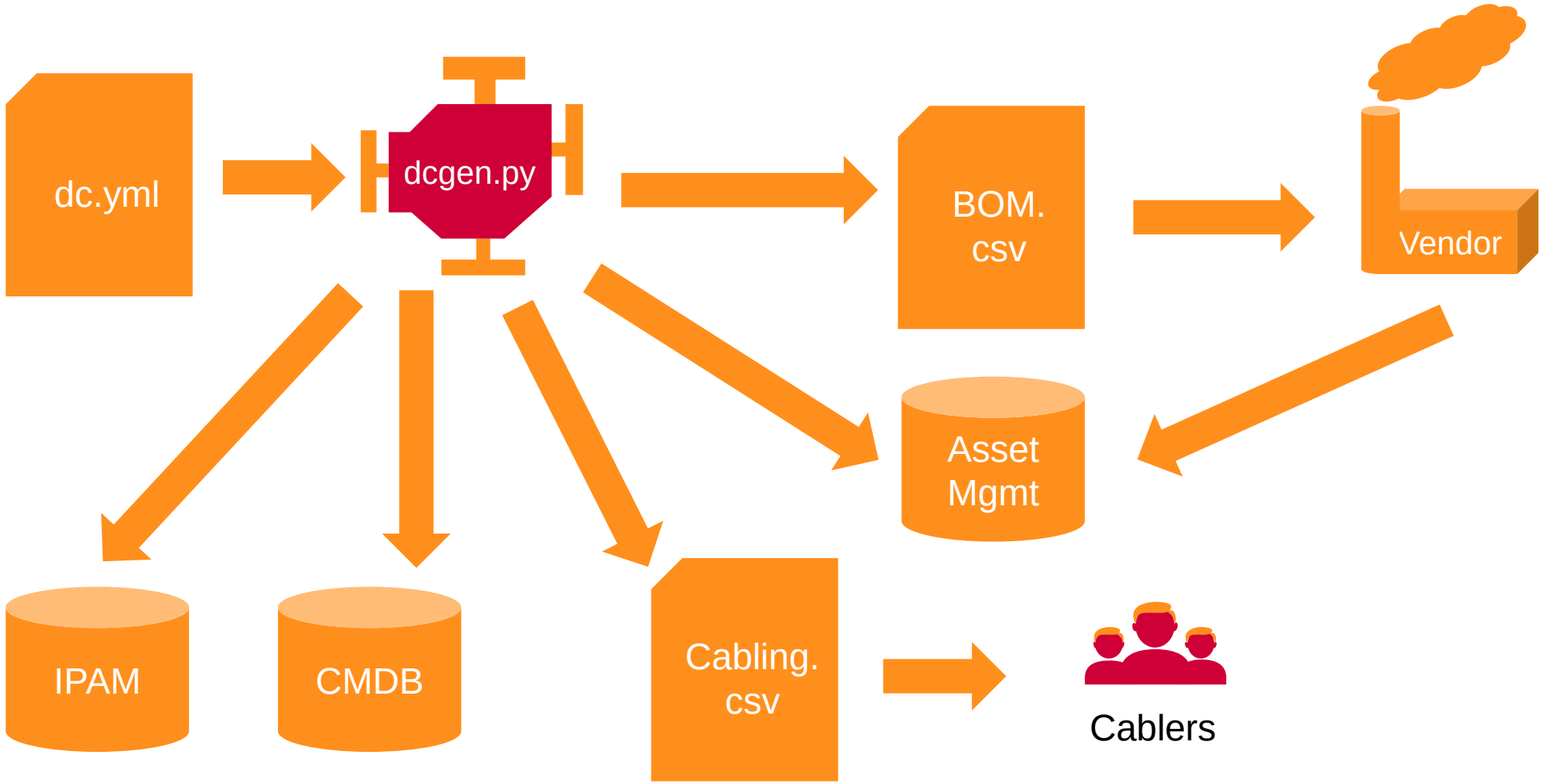
Automation is key

- Find an abstraction layer that fits you
  - Ansible var files
- Build a DC factory

Automation is key



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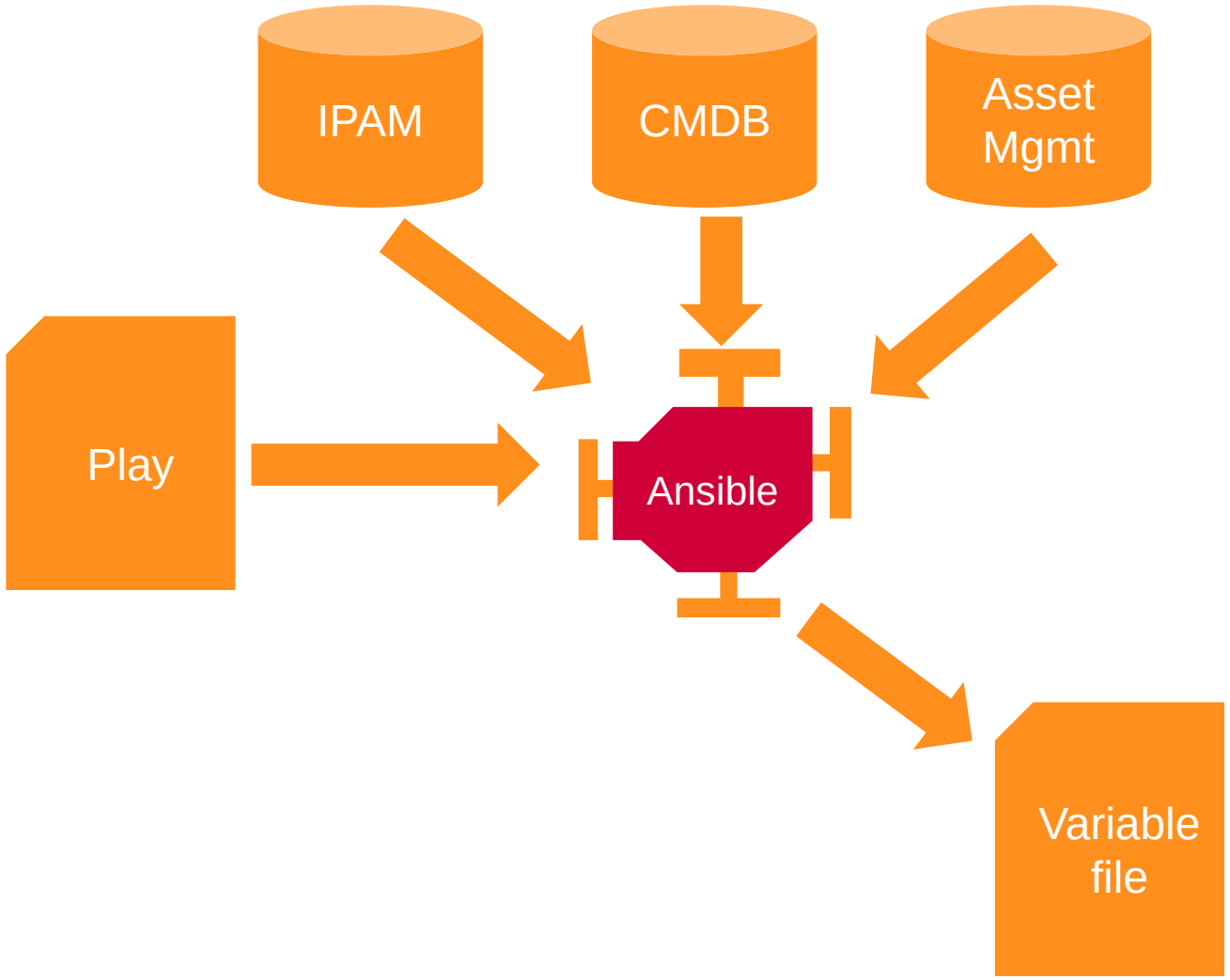

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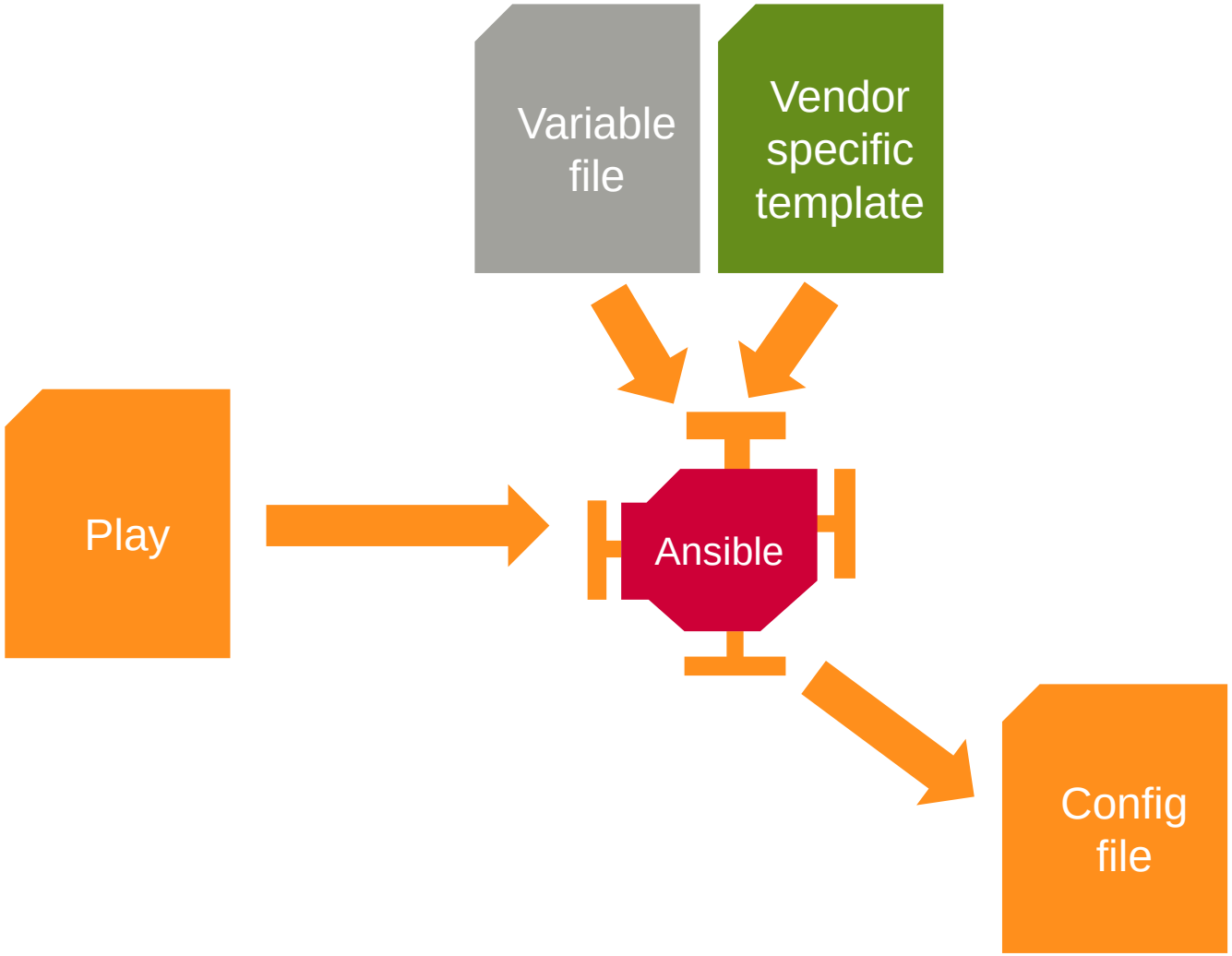

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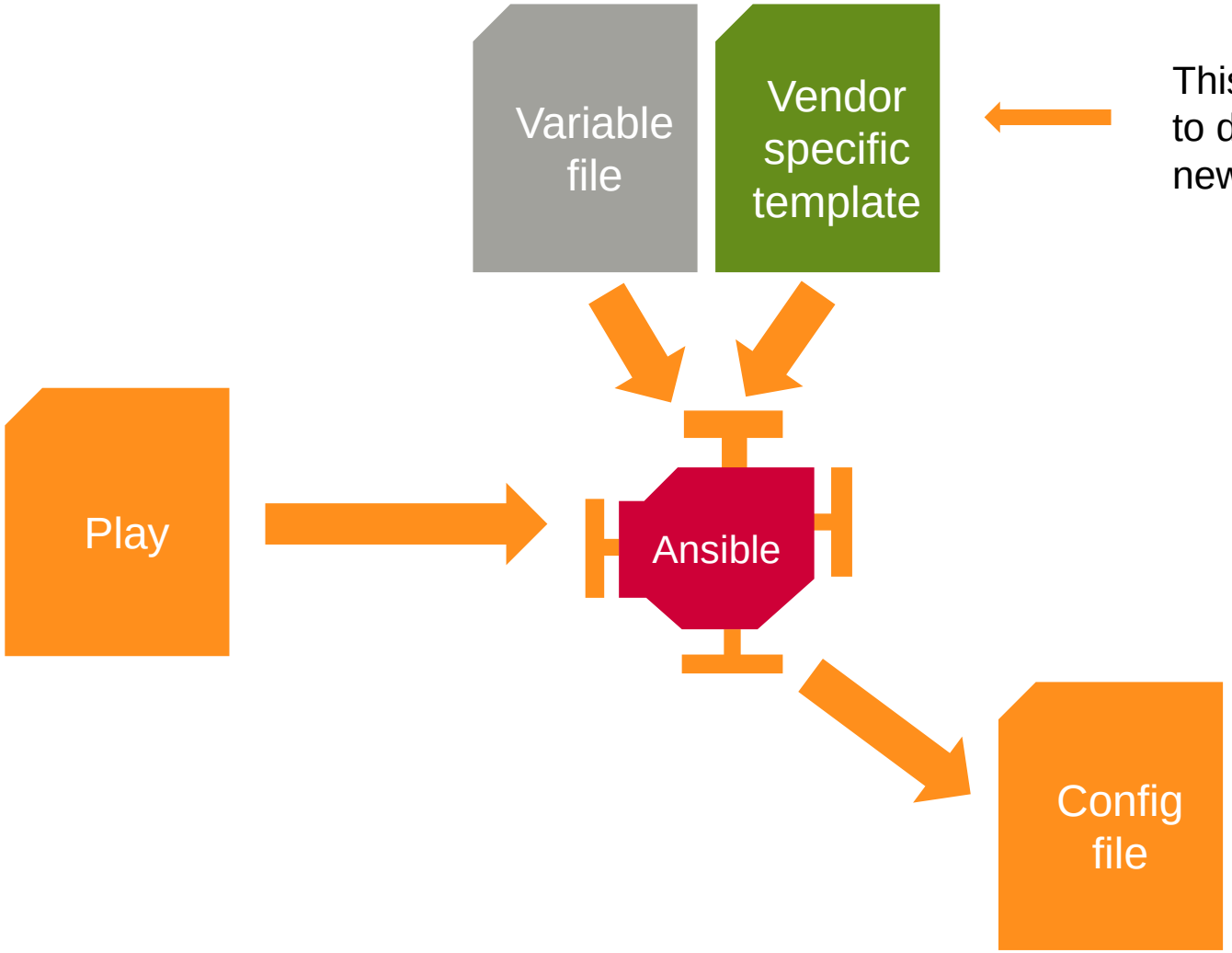
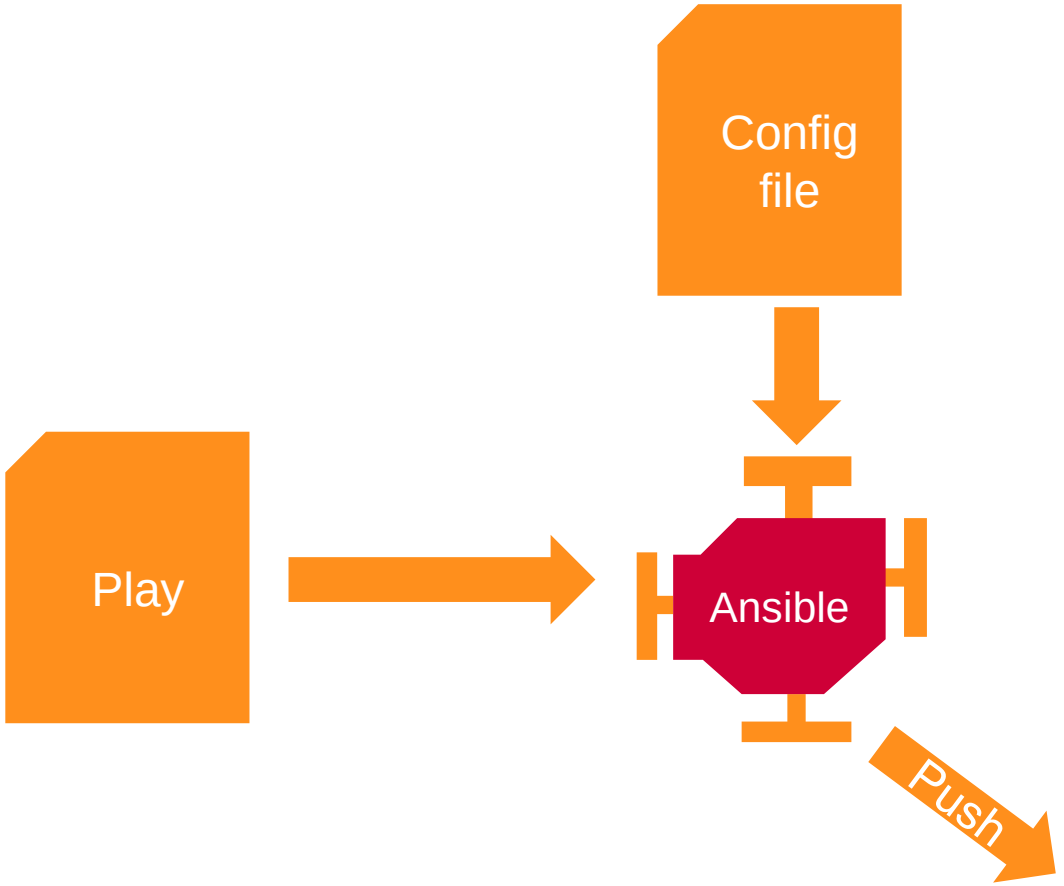


This is the only thing to develop to add a new vendor

Automation is key



Netcompare

https://github.com/criteo/netcompare

The Future

- Disaggregate, Distribute, Decentralize!
- LBs, FWs, Switches
- One OS – Multiple HW vendors
- One template

The Future

- Onboard code:
- Counter streamers (kill SNMP)
- Self healing devices
- Kill Centralization (LB/FW)
- On demand WAN TE

Join Us!

- Criteo is recruiting!
- Want to work with us on the future of DC networking?
- http://www.criteo.com/careers/
- http://labs.criteo.com
- rndrecruitment@criteo.com

- Come see us at the break!

Thank you.

Questions:

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