OPEN.

FOR BUSINESS.

OCP
SUMMIT

Sponsored Track

Learning from Hyperscale to Help You Get Started in Open Source

Aaron Sullivan

OCP Incubation Committee Chair

Not a Tech Talk

Organizational Behavior
Adopting Open Technology

Q&A Panel Session After

How We're Going to Do This

- Setting the stage
  - My journey from enterprise to hyperscale, from closed to open
  - Behavior profile: Veteran IT organizations
  - The Closed to Open Cycle: why, how, when
- How this applies to you
  - Why you're here
  - Hyperscale infrastructure talks and you: a predictable process
- Moving beyond talks
  - Self analysis
  - Goals and value
- Tips for getting started
  - Sourcing & supply
  - Getting help from the OCP community

Setting the Stage

My Journey. Tech Behavioral Profile. Confessions.

My Journey: Started Closed. Moved to Open.

20 Years. Half in Enterprise and Telco / Service Provider. Half in Hyperscale.

10 More Years, Last 6 on OCP

10 Years. Big Brands. Progressively Bigger Infra, Weirder Needs.

Enterprise

- Backoffice & Sys Admin
- IT Support
- Token Ring – Gigabit Ethernet
- Ethernet Core vs. ATM Core
- Security

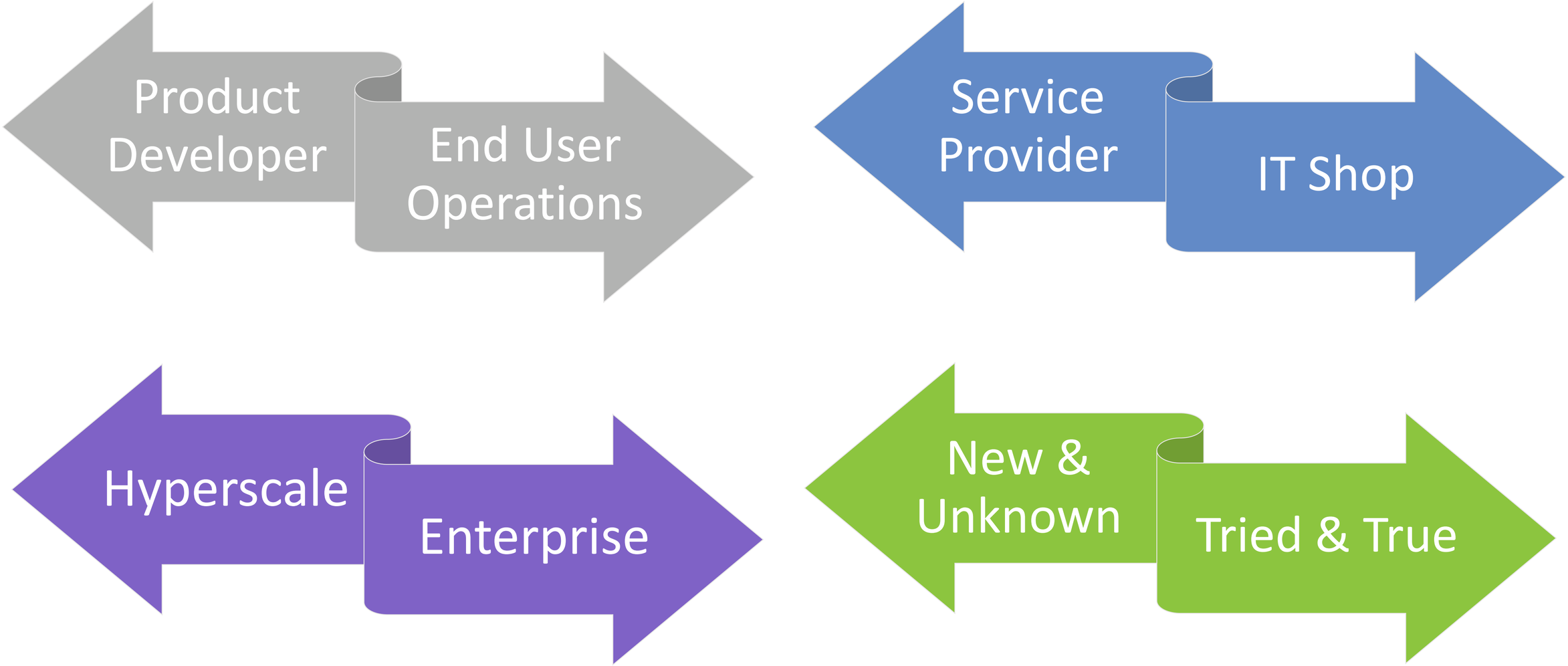
Service Provider

- Managed Security
  - Vulnerability Research
  - Offense. Defense.
- Managed Network Service
  - Routing, Switching, VPN
- Telco (Carrier VoIP)
- IPTV Services (U-Verse TV)

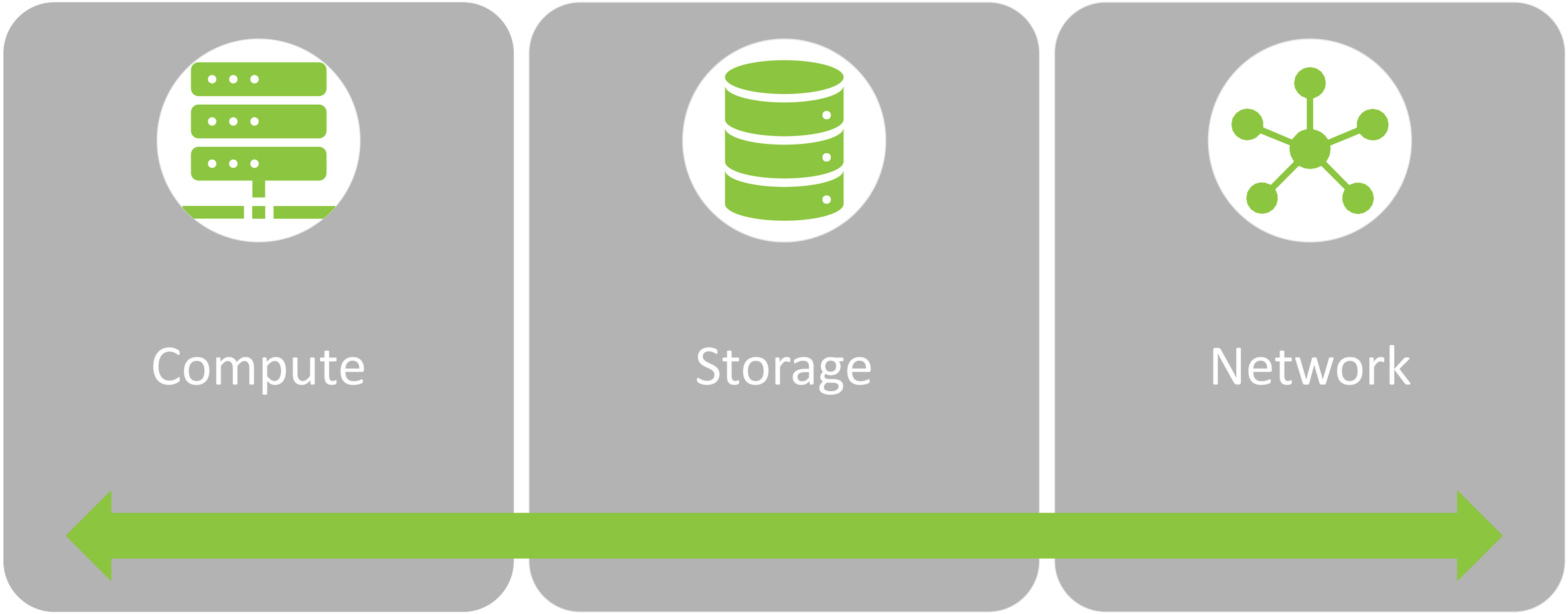
Hyperscale / Cloud

- IaaS, PaaS, SaaS
- Hardware Development
- Infrastructure Strategy
- Cloud Everything
  - Compute
  - Storage (Block/File/Object)
  - Network

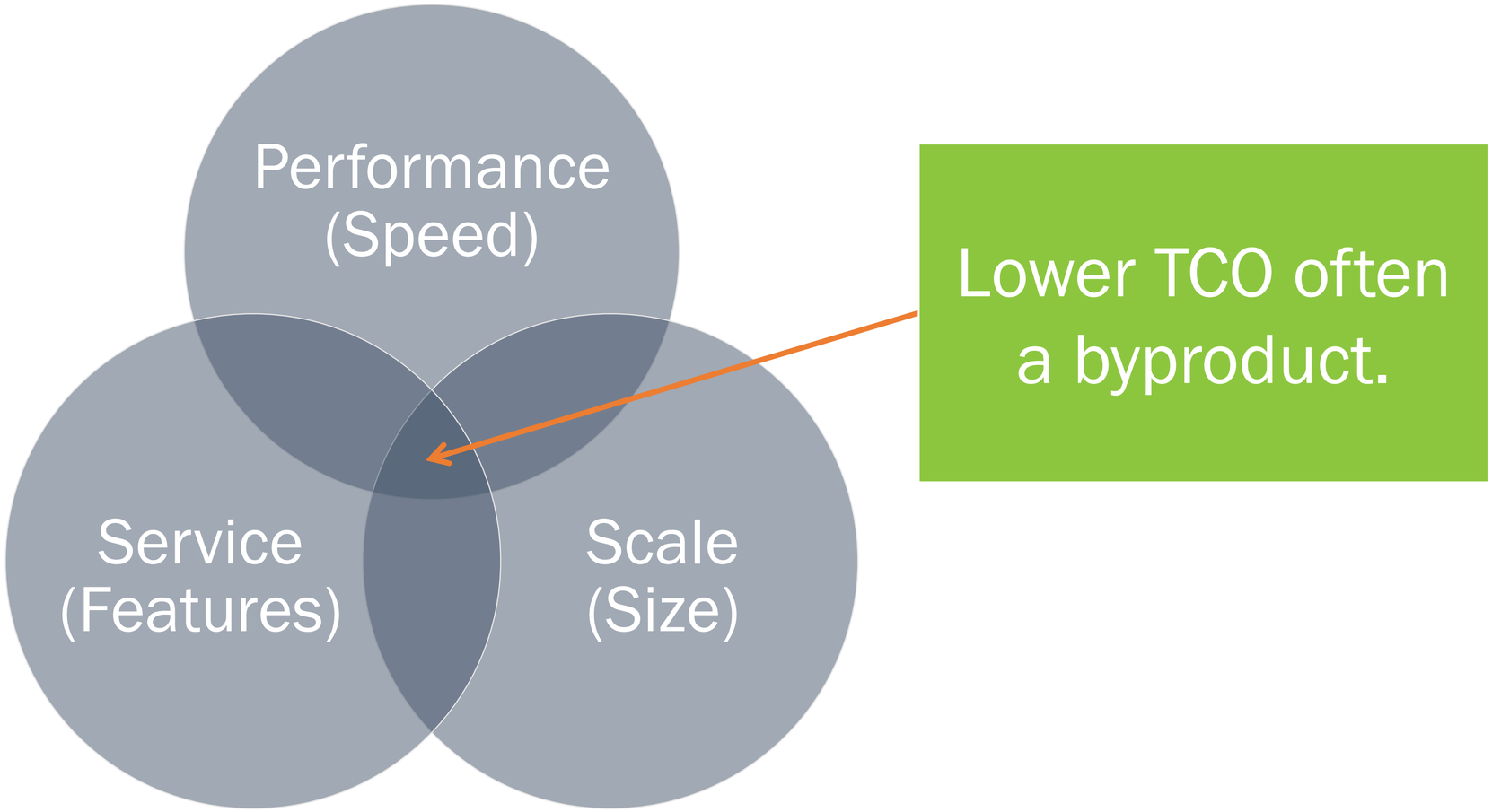
Both Ends of the Universe



Each Major Infrastructure Vertical



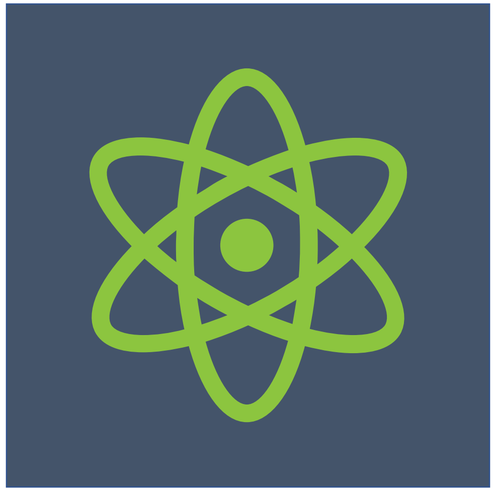
Most Work Done in Pursuit of These (One or More)



About Our Industry

Common Themes

Common Elements & Patterns



Common Elements & Patterns

Change Value

~~Change Value~~

Same Fundamentals

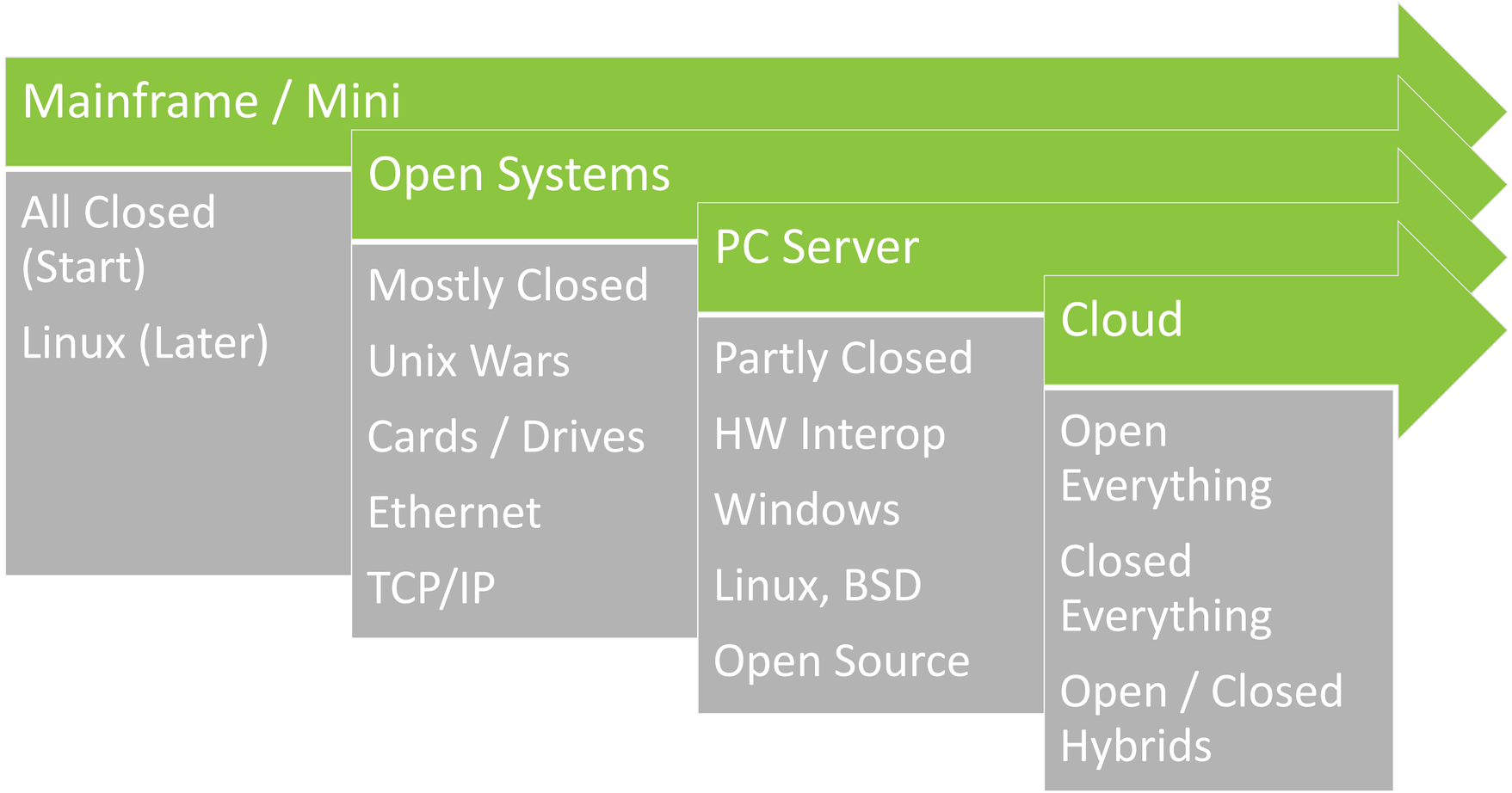
New Circumstances

Start More Proprietary

End More Open

Open Source Has Happened in Each Tech Era

Value & Innovation Pressures Make It So



Profiling Organizations

We’re Probably All on a Few Spectrums

Nothing is New — Everything is New

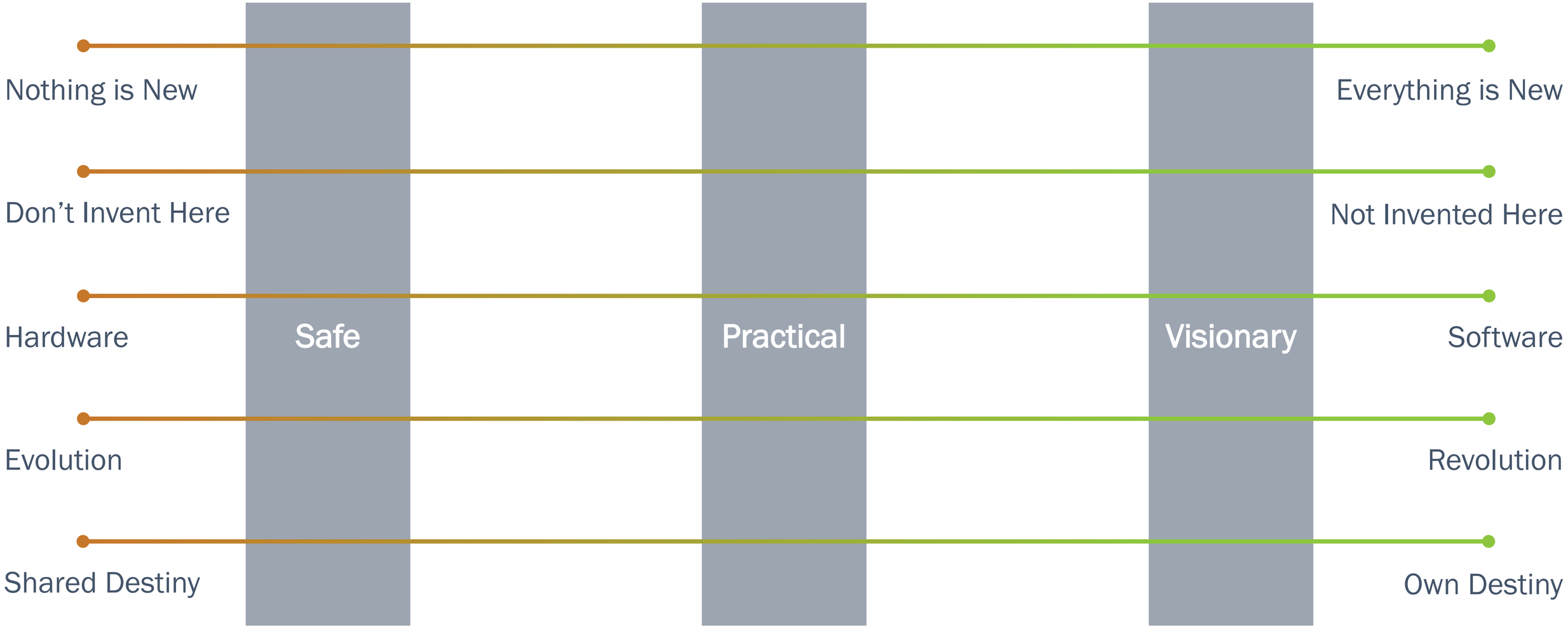
Don’t Invent Here — Not Invented Here

Hardware — Software

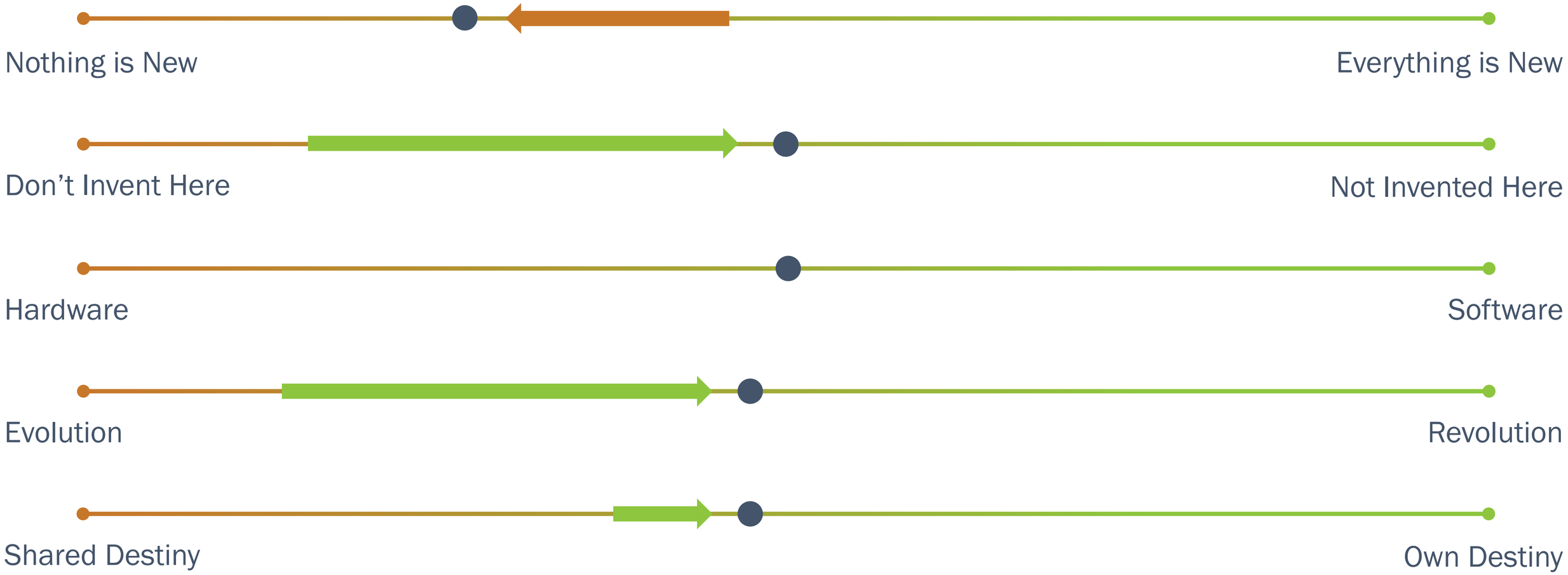
Evolution — Revolution

Shared Destiny — Own Destiny

Competing Philosophies in an IT Organization

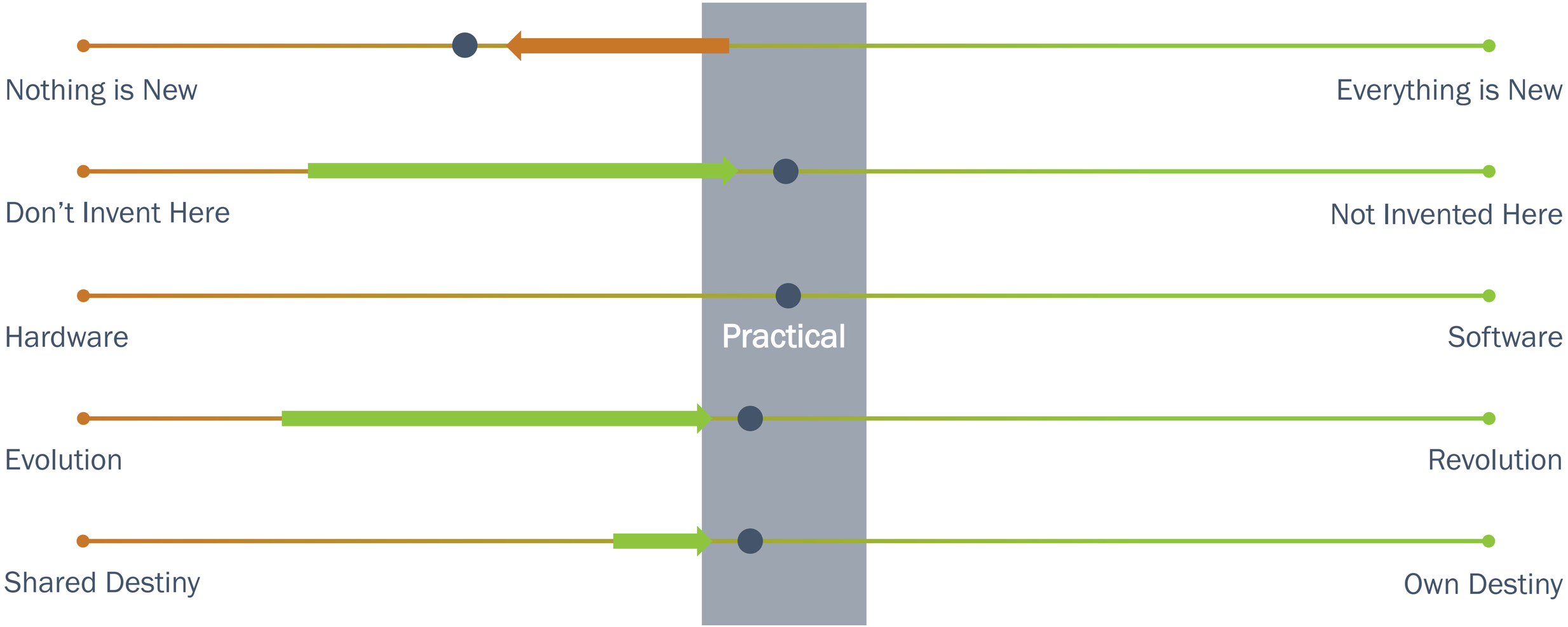


My Change Over the Last 10 Years



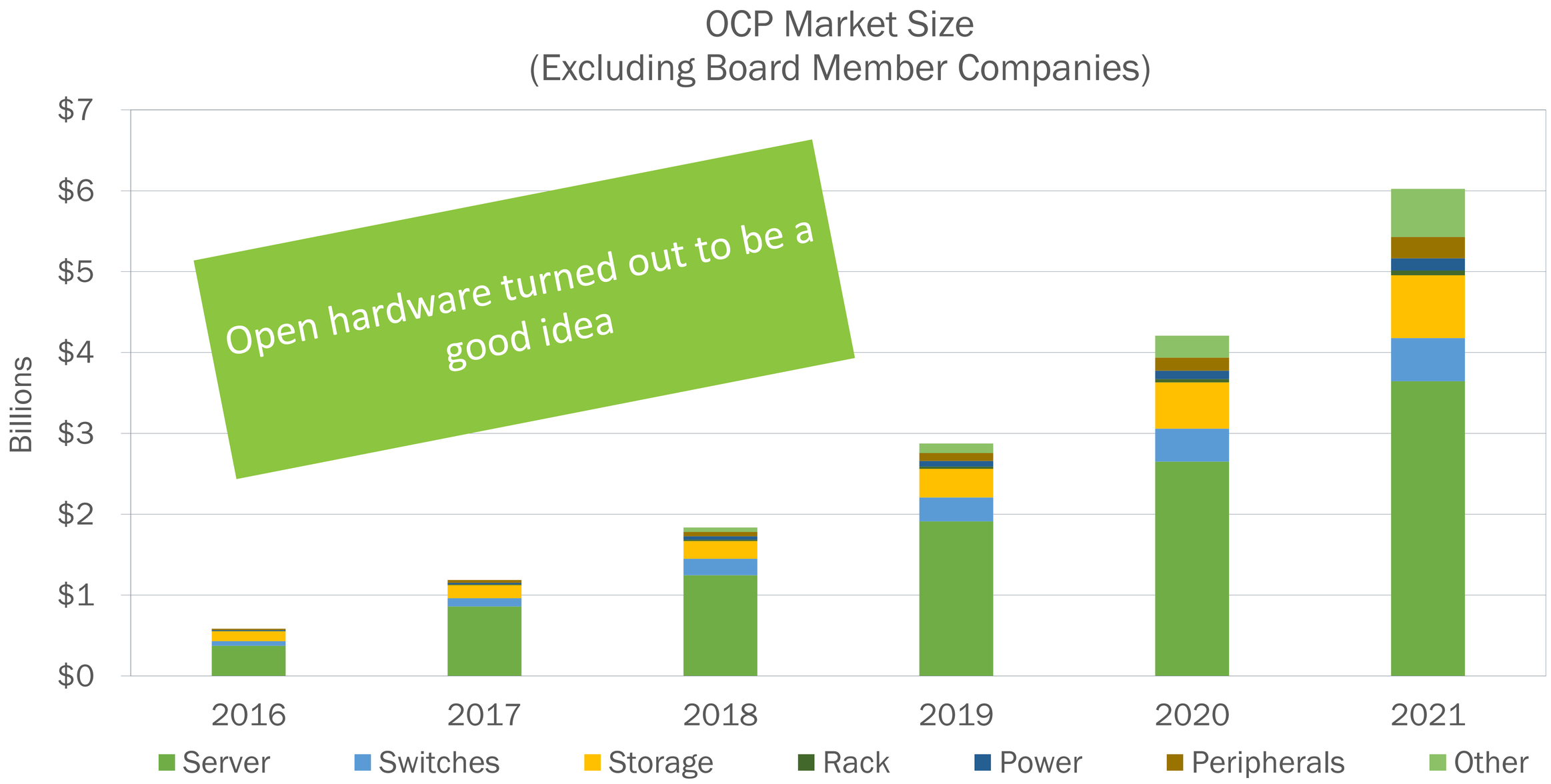
It’s Probably Been Done Already. Just Not for You.

Learn the Past. Make it Better.



Confession:
I Was Not a Fan of OCP


DESTROY
PROPRIETARY
CONTROL



Source: IHS Markit

More on Markets, Later

On Veteran IT Shops

(Or What I Recall from My Times in Them)

Good. Bad. Selection Pressures.

What I Love About Veteran IT

Documented

Systematic

Rule Based

Sometimes We Evolve to This

“It’s all been done.”

“Don’t touch it, it’s working.”

“It doesn’t need to change.”

“I just manage the supplier.”

“The supplier does all the engineering work.”

It’s Easy to Think This is The Reason Why

(It’s Also Often Wrong)

~~Lazy. Boring. Past Prime. Selfish. Don’t Care.~~

This is Often The Reason Why

The world was once totally broken.

We have made order from chaos.

We are not going back to chaos.

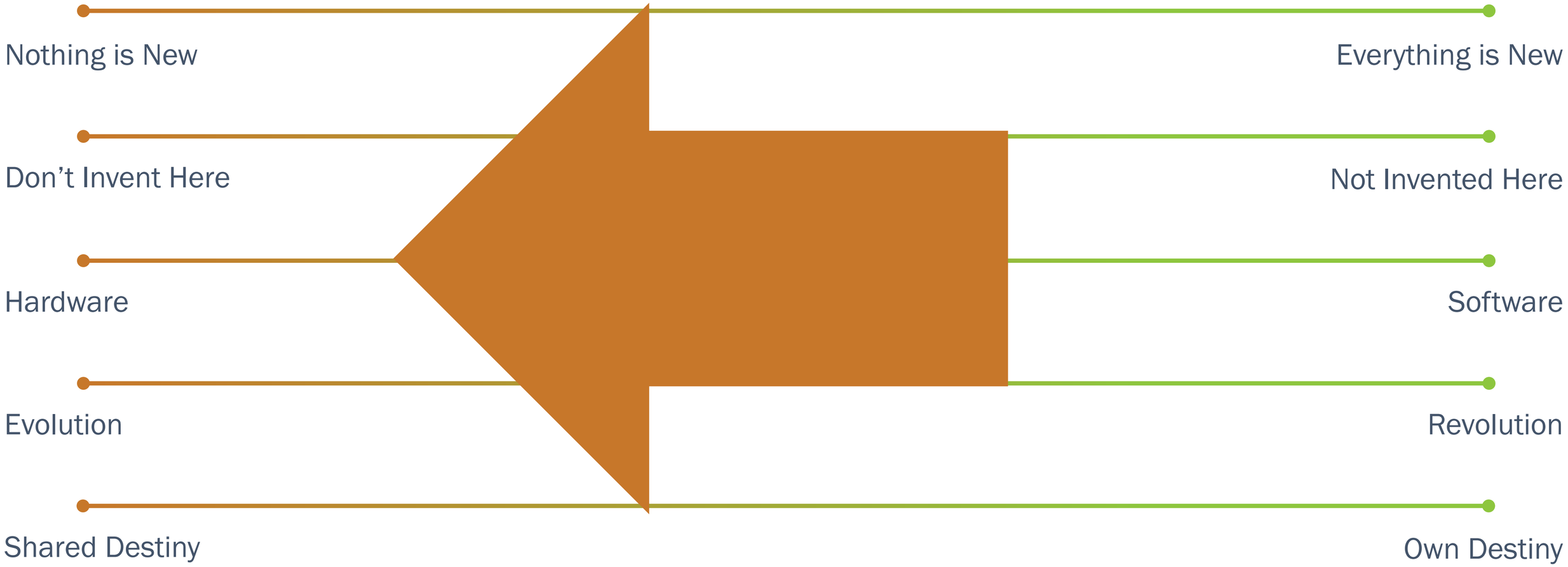
Chaos = downtime, unplanned costs, pain

We End Up Here By Solving Problems

Revolution → Chaos → Order & Stability (and often, Stagnation)

- ✓ **Less Confusion, More Focus**
- ✓ **Less Empowerment, More Stability**
- ✓ **Outsource Innovation & Risk**
- ✓ **Pay to Solve. Pay to Blame.**

Natural Evolution Towards Conservatism & Safety



Successful Veteran IT Values Uptime Above All

Value

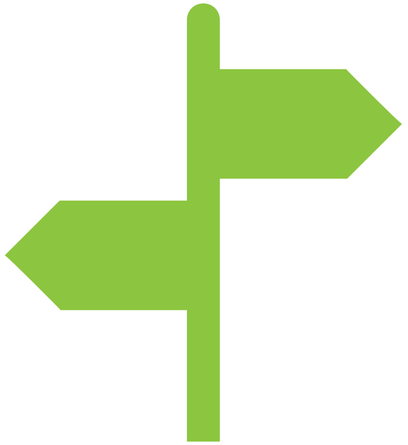
On the Phenomenon of “Open”

When it Happens. What it Does. Common Misconceptions.

Free. Beer. Freedom.

Beer

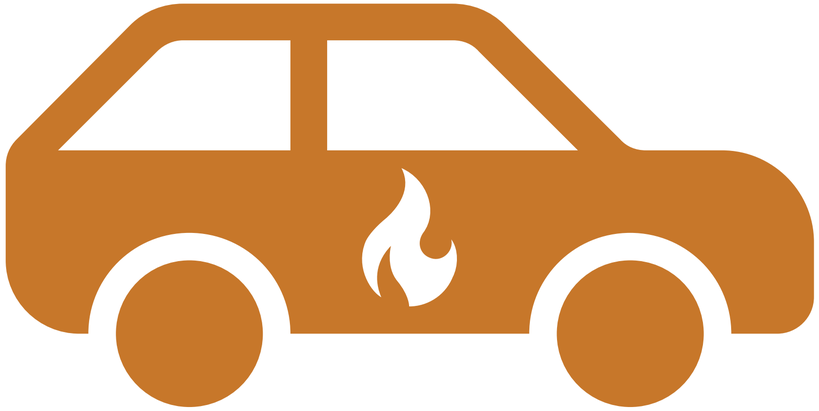
- Cheap
- Plentiful
- Paid for by Someone Else



Freedom

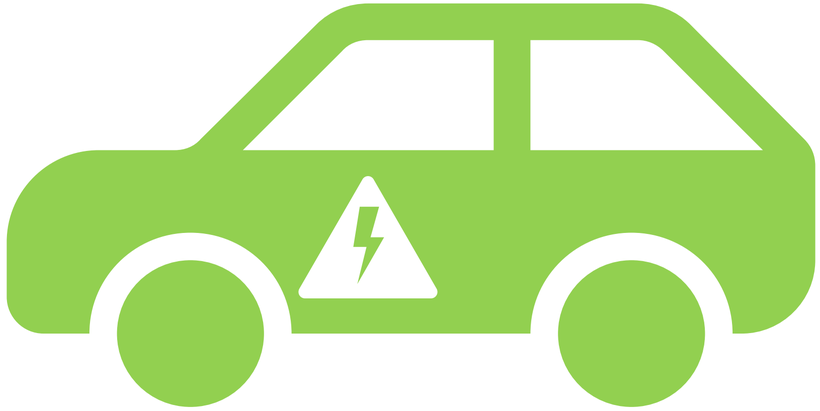
- Innovative
- Idea Driven
- Future is in Your Hands.

Cost vs. Freedom to Innovate.



Combustion

- High supply & standardization
- Optimization: high cost, low return
- Risk in falling behind
- Cheap now. Low potential.



Electric

- Limited supply & standardization.
- Optimization: high cost, high return
- Risk in getting to scale
- Expensive now. High potential.

Open Source on The Spectrum

Nothing is New — Everything is New

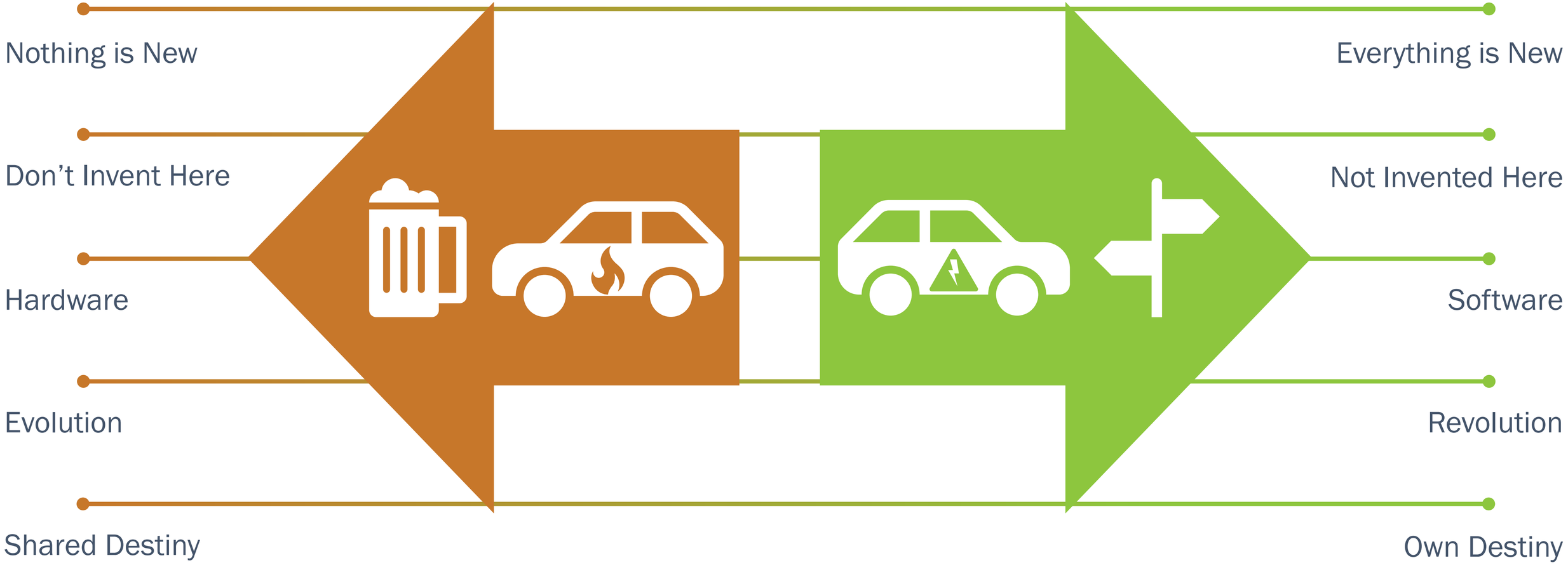
Don’t Invent Here — Not Invented Here

Hardware — Software

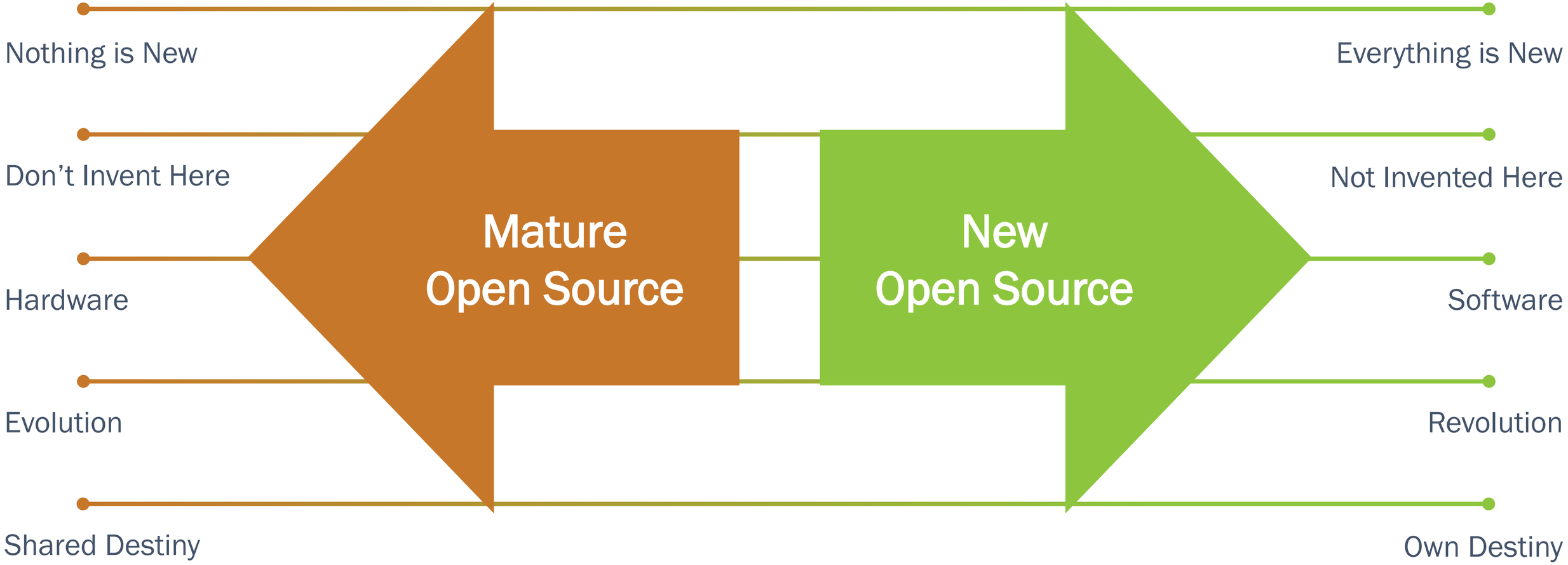
Evolution — Revolution

Shared Destiny — Own Destiny

Open Source Is Both

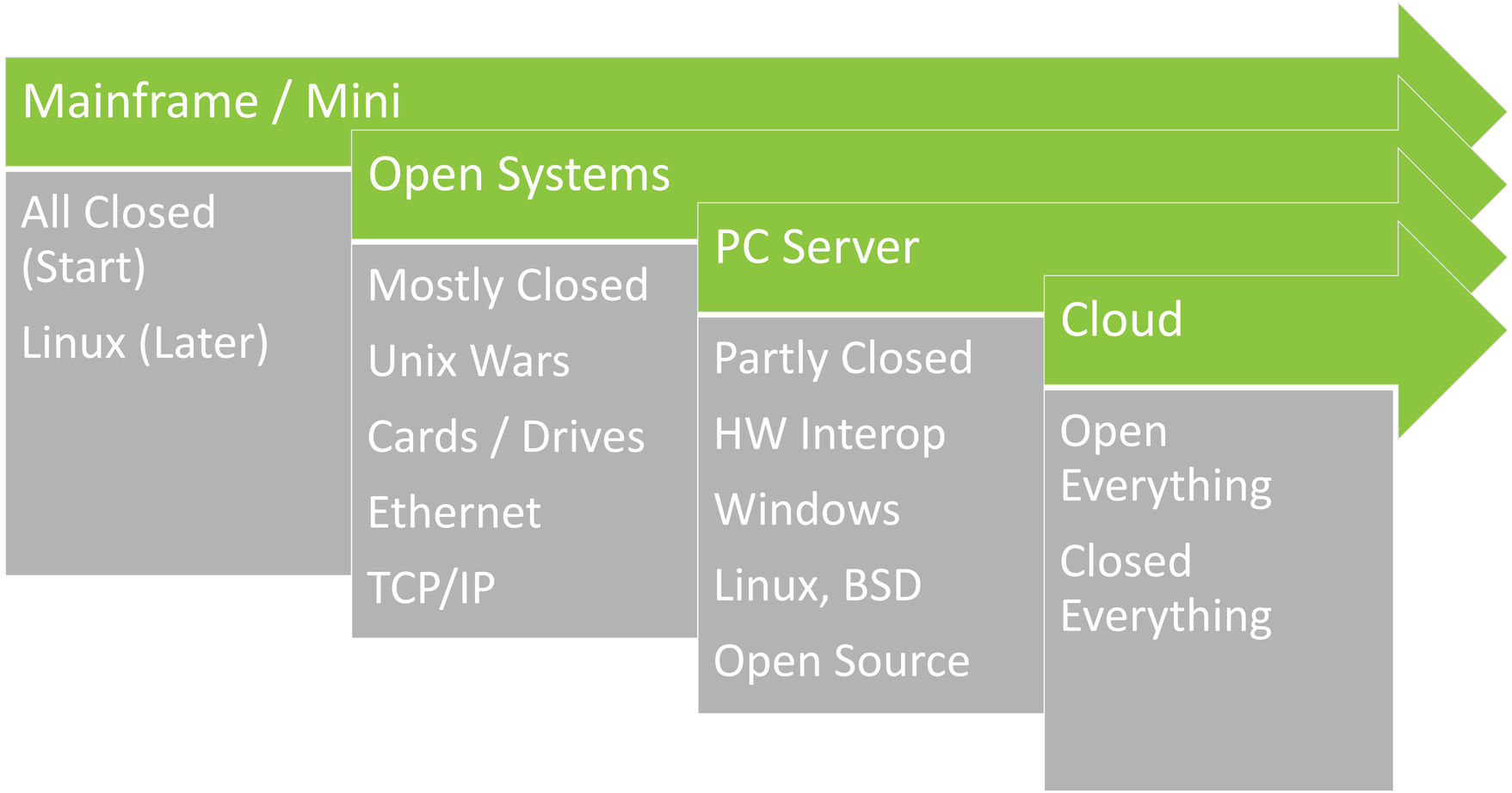


Open Source Also Enables Freedom to Move



Open Source Has Happened in Each Tech Era

Value & Innovation Pressures Make It So



“History does not repeat itself, but it often rhymes.”

Open Source Has Happened.

Open Source Is Happening.

Open Source Will Continue to Happen.

…

Future Instances of It Will Have Many Similarities, Some Differences.

How this Applies to You

Why Are You Here?

The Big Question.

I Want More Control Over My Technology Stack

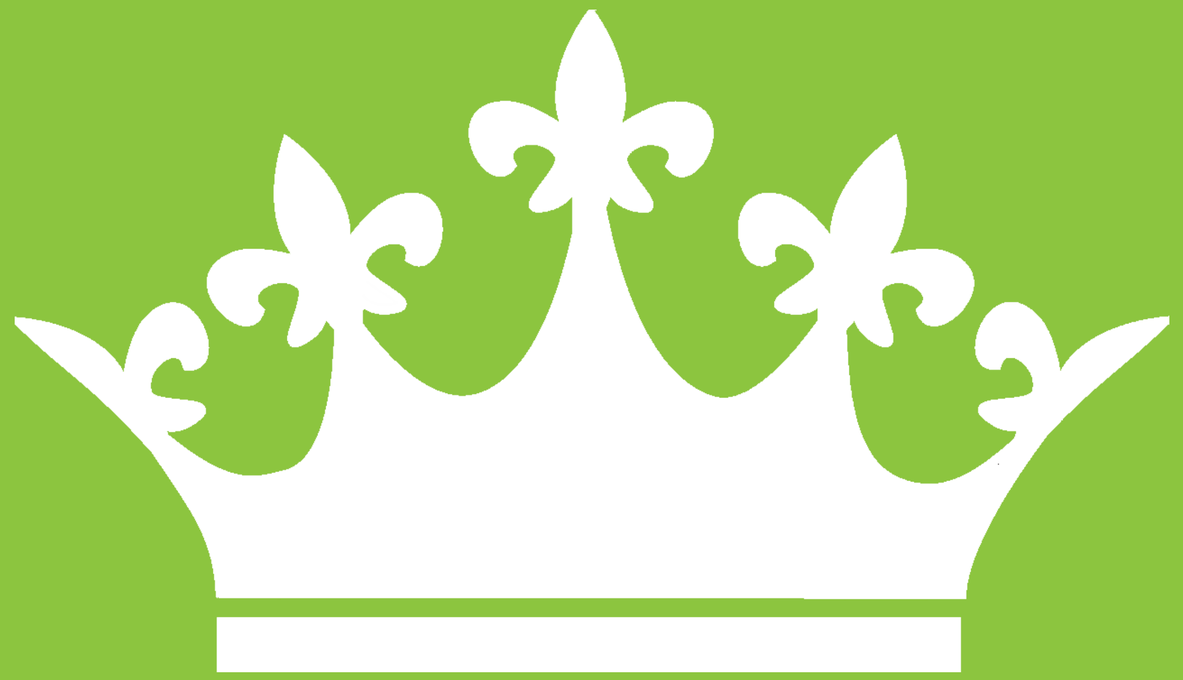
A Central Element of Every Hyperscale Success Story
Compute. Storage. Network. Software. Everything.

What it’s like listening to hyperscale talks at first…

...later

Why?

Which is More Motivational: Watching a DIY Show or a Beauty Pageant?



Do It Yourself

DIY Analysis → DIY Infra

Self Analysis

Your Team. Your Stack. Your Engineers. Your Supply Chain.

We’re All Complicated

Team Resources

- Engineering
- Operations
- Supply Chain

Culture

- Risk / Reward
- Commit / Decommit
- Value of Failure

Program Management

- Complexity
- Process
- Inputs / Outputs

Vision

- Cost
- Operational Efficiency
- Innovation & Freedom

Map Your Team

Nothing is New — Everything is New

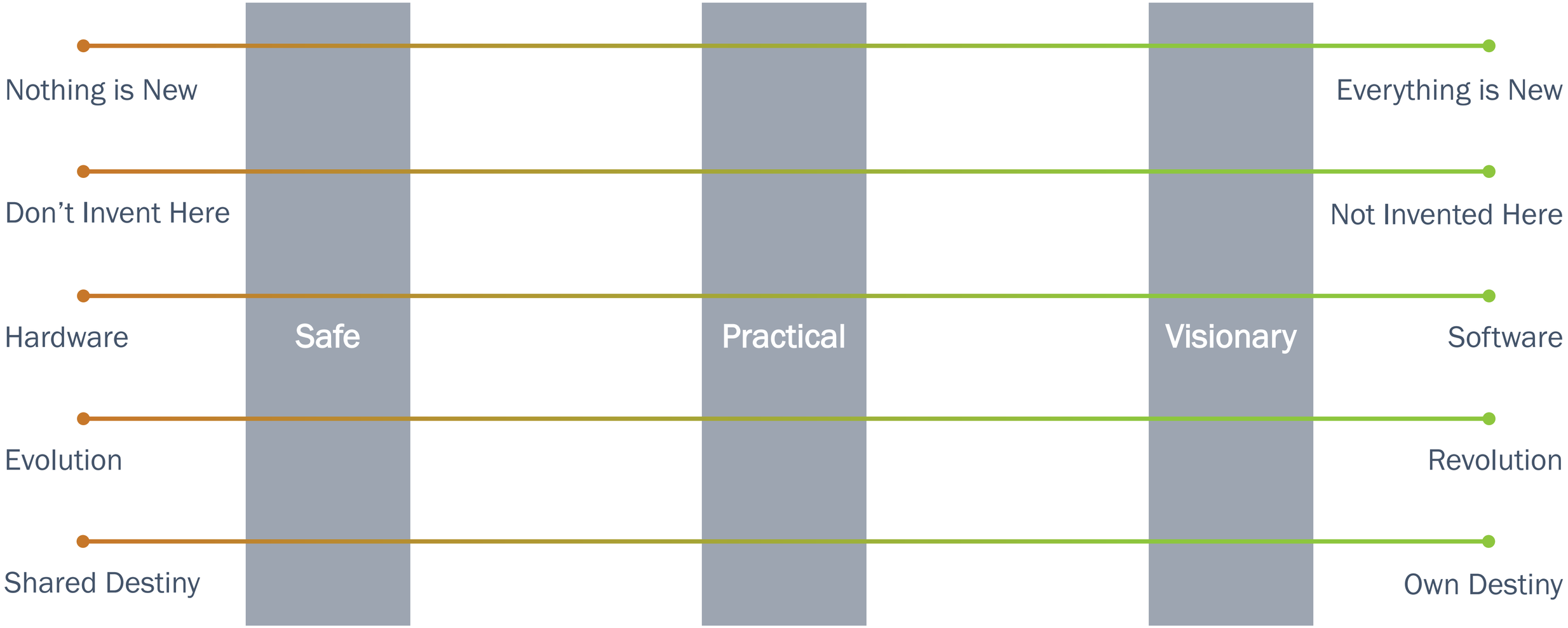
Don’t Invent Here — Not Invented Here

Hardware — Software

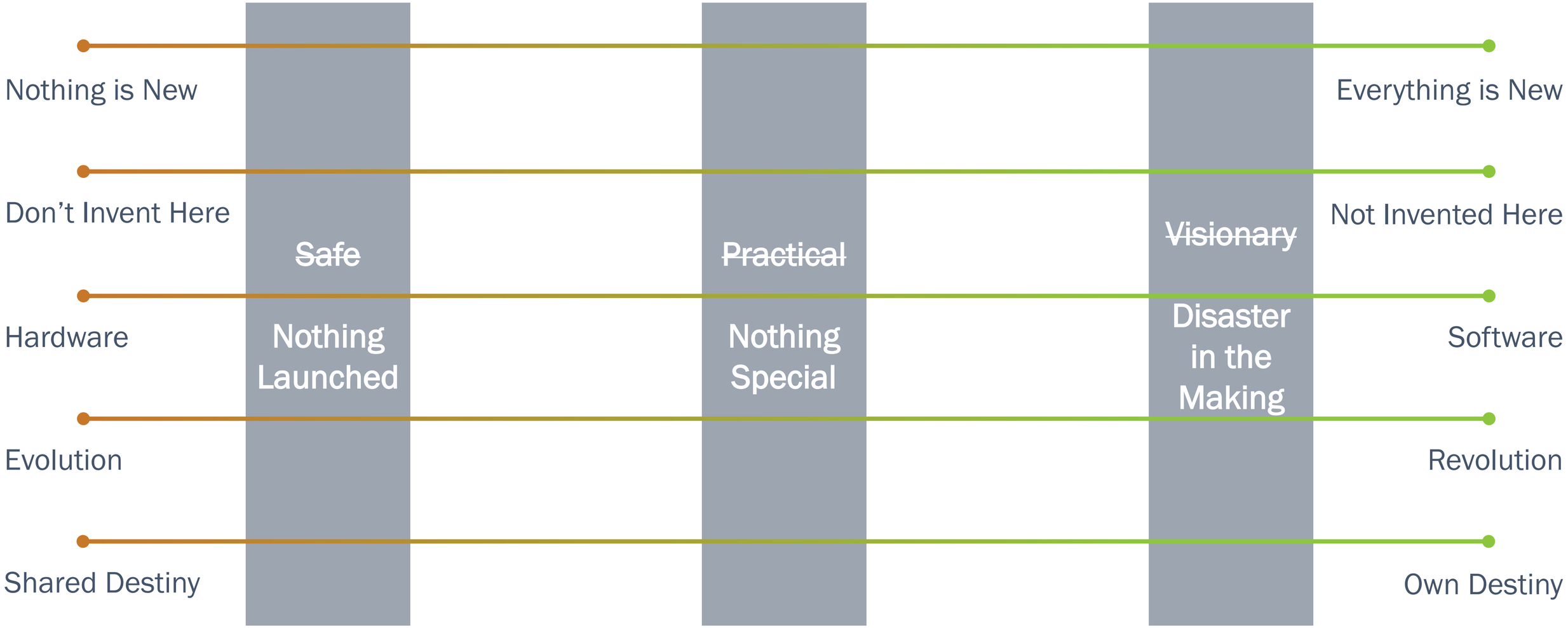
Evolution — Revolution

Shared Destiny — Own Destiny

Who Needs to Move? To Where? On Which Axis?



Too Much of Anything Is Not the Right Combo



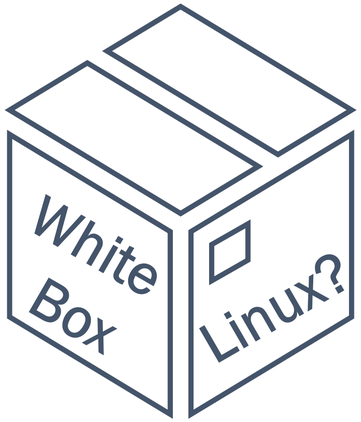
Goals & Value

Setting Goals on TCO. Determining Critical Features.

Stack Migration vs. Deconstruction.

Infrastructure-centric Apps.

Setting Goals With Infrastructure TCO



Warning:
Start, Not End
(For Most)

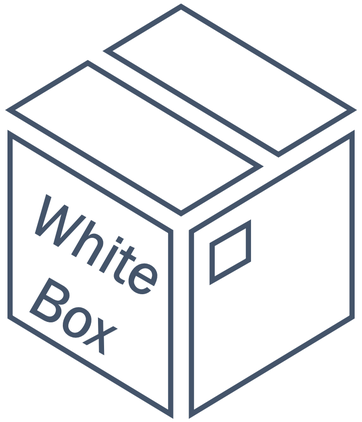
TCO Roadmap
Unit Cost
Analysis
Innovate on Units

Architects & Dirty Hands
Adventures in Sourcing
SW Eng. & Ops Love
Infra

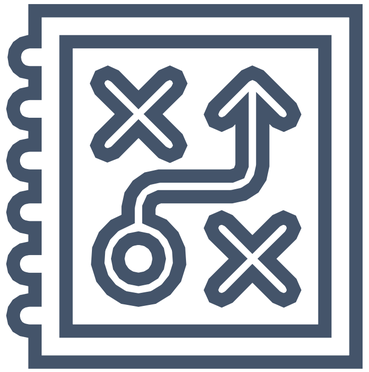
No Critical Path
Take Your Time
Start Safe

What are Realistic Goals?

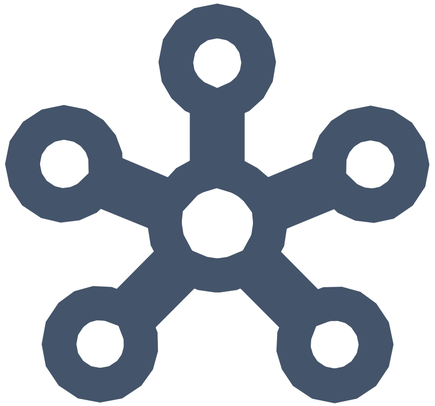
Talk About Your Shop in Future Sense



Now?
Six Months
One - Three Years



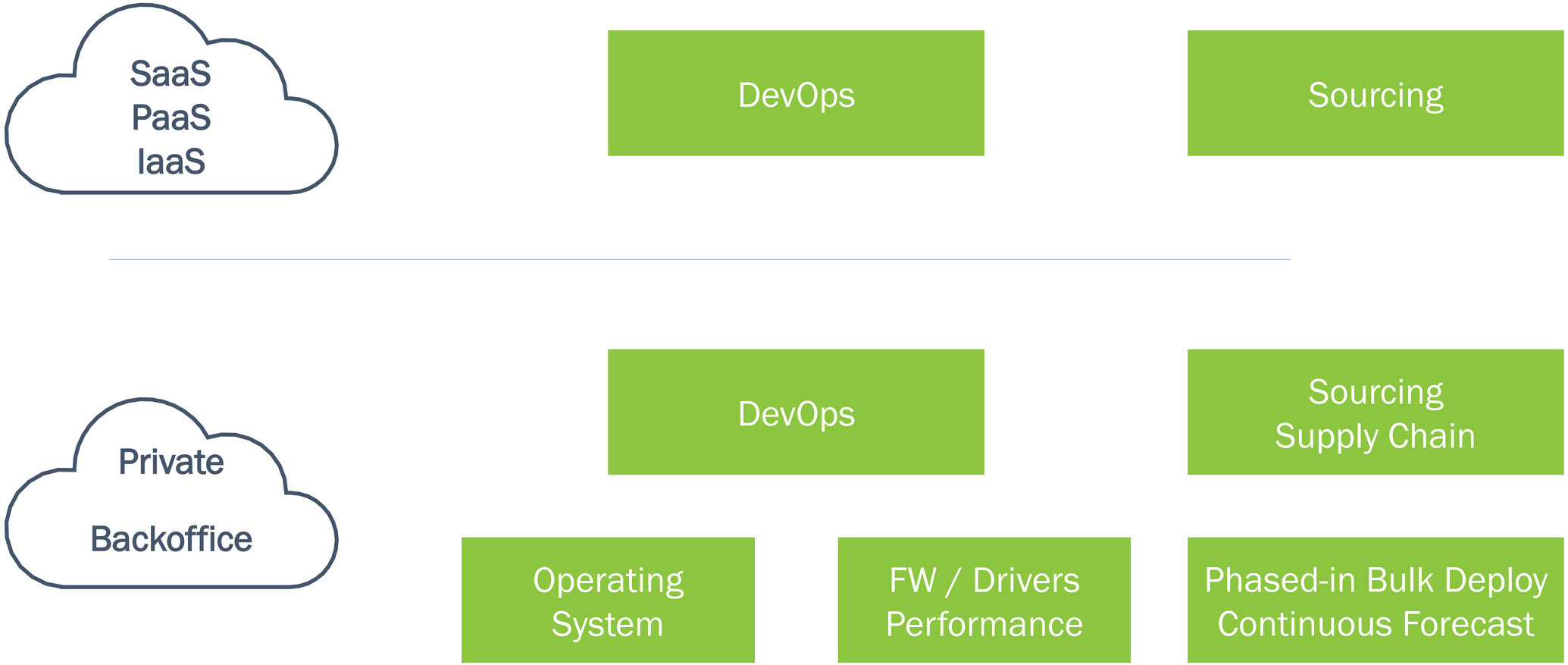
What Unblocked?
New Powers
More than $ Acq.



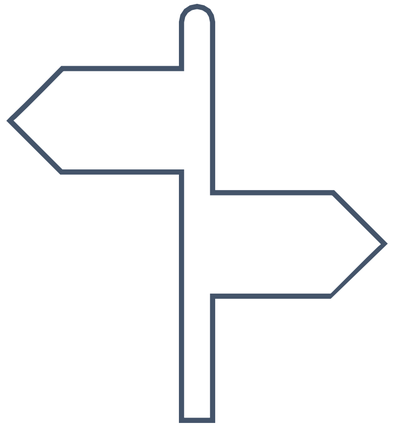
(Re)Distribute Resources
Add Services
Security & Availability
Better Utilization

Two Kinds of Stacks. Two Kinds of Teams.

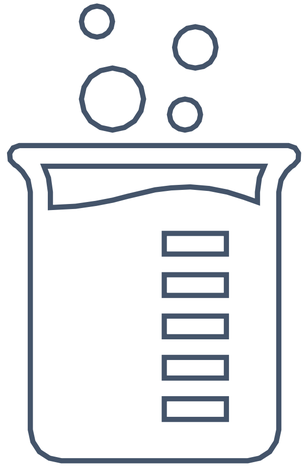
You Probably Grew Your Own Cloud Practice. Grow Your Own Infra Practice, too



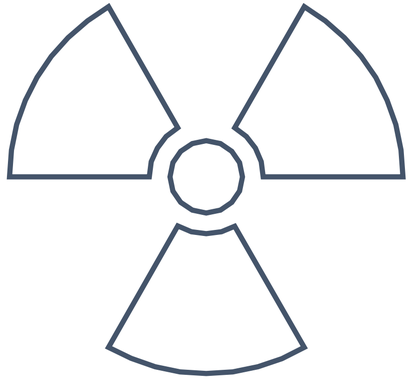
Your Goals with Infra-centric Apps



Freedom
Build a Tool Stack
Great Interop



Experimentation
Learning Lab
Pick Your App



Hack to Learn
~~Hack to Deploy~~
Untried Stack Combinations

Tips for Getting Started

How to Get Started: Sourcing & Supply

Network

- Individual units
- Wide software choice

Storage

- Buy by the rack
- Major OS Support
- Scale-out software

Compute

- Buy by the rack
- Major OS support
- Same or New Apps

Components

- Buy off OCP Supplier AVL
- Don’t do your own
- Volume justifies AVL add

OCP Marketplace

Welcome to the OCP Marketplace, where you can research products, review specifications and collateral, as well as find out how to purchase OCP products, so you can realize the many benefits of our open community. Use this tool to determine the right mix of OCP technologies to design and purchase a system that meets your specific needs.

Search Marketplace

Type of search

- Orderable Products
- Specifications & Design Collateral

Status

- OCP Accepted (72)
- OCP Inspired (31)

Architecture Category

- ✓ Network (51)

Solution Provider

- Edgecore (26)
- ITOCHU Techno-Solutions Coporation (26)
- Hyve Solutions (26)
- HPE Altoline (9)
- Cumulus Networks (30)
- ColorChip (1)

> OCP Marketplace Home

100G QSFP28 CWDM4 LITE TRANSCEIVER

OPEN INSPIRED

Model #: C100 Q020 CWDM4 02B
Part #: C100 Q020 CWDM4 02B
Spec #: S0126
Manufacturer: ColorChip
Tags: N/A
Solution Provider: ColorChip

Description: 100G QSFP28 CWDM4 Lite Transceiver

VIEW DETAILS

CUMULUS EXPRESS BACKPACK CHASSIS - FULLY POPULATED 100GBE - FRONT TO BACK

OPEN ACCEPTED

Model #: N/A
Part #: CX-10128-S-F-B
Spec #: S0144
Manufacturer: Cumulus Networks
Tags: N/A
Solution Provider: Cumulus Networks

Description: Cumulus Express offers turnkey solution featuring an open networking switch, which is preloaded with the Cumulus Linux operating system, installed with an active license key, and bundled with 3-years of support.

VIEW DETAILS

CUMULUS EXPRESS BACKPACK CHASSIS - HALF POPULATED 100GBE - FRONT TO BACK

OPEN ACCEPTED

Find out how to become an OCP Solution Provider and feature your products here

OCP ACCEPTED

MORE INFO

OCP Marketplace

Welcome to the OCP Marketplace, where you can research products, review specifications and collateral, as well as find out how to purchase OCP products, so you can realize the many benefits of our open community. Use this tool to determine the right mix of OCP technologies to design and purchase a system that meets your specific needs.

Search Marketplace

Type of search

- Orderable Products
- Specifications & Design Collateral

Status

- OCP Accepted (72)
- OCP Inspired (31)

Architecture Category

- Rack & Power (2)
- Network (51)
- Integrated Solution (2)
- Storage (11)
- Server (37)

Solution Provider

- Edgecore (26)
- ITOCHU Techno-Solutions Coporation (45)
- Hyve Solutions (30)
- QCT (18)
- Penguin Computing (19)
- Wiwynn (19)
- HPE Altoline (9)
- HPE Cloudline (5)
- Radisys (5)
- Inspur (1)
- Cumulus Networks (30)

> OCP Marketplace Home

WIWYNN BRYCE CANYON (SAS12G) STORAGE SERVER WITH 1 SERVER CARD SUPPORTING 72 HOT-PLUGGABLE HDDS.

OPEN ACCEPTED

Model #: SV7000G2-L
Part #: SV7000G2
Spec #: S0152
Manufacturer: Wiwynn
Tags: N/A
Solution Provider: Wiwynn, ITOCHU Techno-Solutions Coporation, Penguin Computing

Description: Integrated storage server that provides powerful storage capability with easy scalability. The leading SAS12G storage server in the industry, featuring up to 72 hot-pluggable HDD with redundant data.

VIEW DETAILS

WIWYNN BRYCE CANYON (SAS12G) STORAGE SERVER COMPRISING 2 SERVER CARDS WITH UP TO 36 HOT-PLUGGABLE HDDS EACH.

OPEN ACCEPTED

Model #: SV7000G2
Part #: SV7000G2
Spec #: S0152
Manufacturer: Wiwynn
Tags: N/A
Solution Provider: Wiwynn, ITOCHU Techno-Solutions Coporation, Penguin Computing

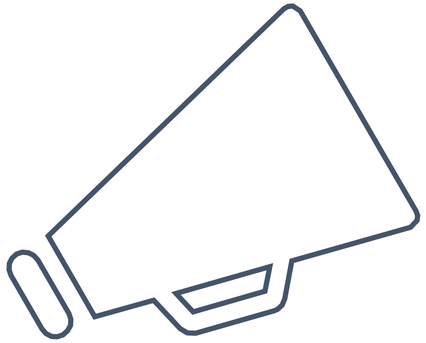
Description: Integrated storage server that provides powerful storage capability with easy scalability. The leading SAS12G storage server in the industry, featuring up to 72 hot-pluggable HDD with redundant data.

VIEW DETAILS

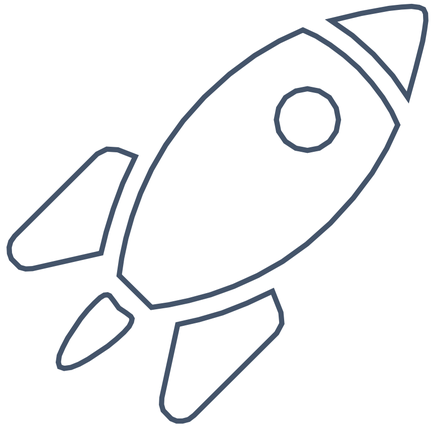
Tips for Getting Help from the OCP Community

Find Like Minds
Find Like Sizes
Developer Focus
Consumer Focus

OCP Marketplace
Solution Providers
Travel.
Visit "The Store"



Co-Market. **Loudly**.
Blog. Social Media.
Promote Who Helps



Invest. Persist.
Try New Things.
Contribute,
Eventually


DESTROY
PROPRIETARY
CONTROL

Experiment. Be Persistent.
Be Self-Aware. Be a Little Fearless.

Open Will Happen to You Just a Matter of Time

OPEN.

FOR BUSINESS.

OCP
SUMMIT