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YOUR NETWORK IS  
YOUR BUSINESS

# DART: An IT Skills Framework to Disrupt Without Disrupting

Kong Yang

Head Geek™, SolarWinds



# About the Speaker

## Kong Yang

- SolarWinds' Head Geek™
- US Patent Holder
- VMware® vExpert and Cisco® Champion
- With SolarWinds since 2014
- Focus on IT telemetry for any given environment

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# Agenda

- IT pros need to bridge any technology construct to business utility. Utility manifests as disruptive innovation that will add value to the business and is usually reflected in applications. To realize maximum value, the end game for IT operations is enabling continuous integration and continuous delivery of services. There are four skills that can any IT professional can learn and use to enable disruptive innovation without causing disruption. This session will introduce the DART skills: Discovery, Alerting, Remediation, and Troubleshooting.

Attendees will receive:

- A walk-through of the **DART framework** to deal with DevOps, Infrastructure as code, and Hybrid IT
- **Examples of the skills** applied to **real-world application scenarios**
- **Best practice tips** and **techniques** to maximize each skill's utility to the business

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# Disrupted Agenda

disruptive innovation  
continuous delivery of services

IT operations

applications  
continuous integration and

- **DART framework**
- **Examples of the skills**      **real-world application scenarios**
- **Best practice tips**      **techniques**

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# App-propos Disruption

**Alibaba.com<sup>®</sup>**

Most valuable retailer  
No inventory

**Airbnb<sup>®</sup>**

Largest accommodation provider  
No real estate

**Facebook<sup>®</sup>**

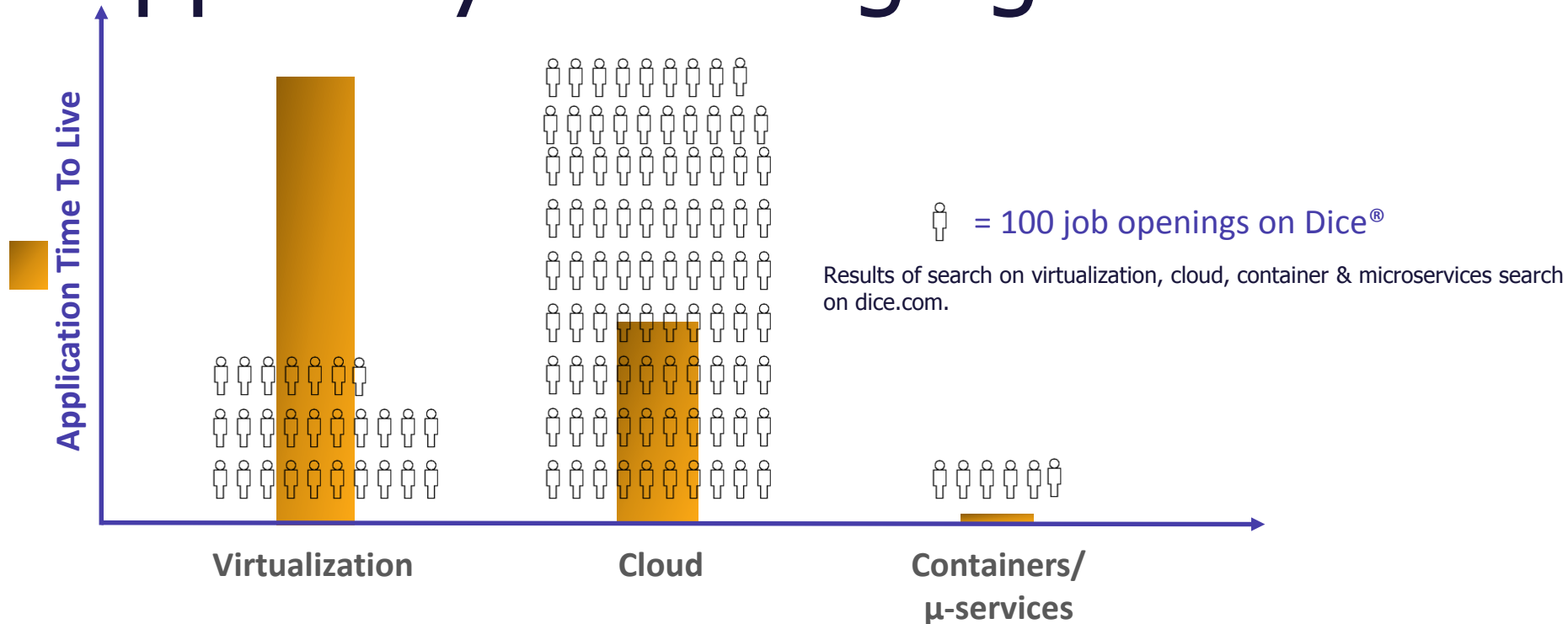
Most popular media owner  
No content

**Uber<sup>®</sup>**

Largest Taxi company  
No vehicles

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# App lifecycle changing



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# IT changing



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# CIO SLA remains the same.

- Secure
- Lean
- Agile



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# 2016 IT Trends Index: Turn Cloud for What

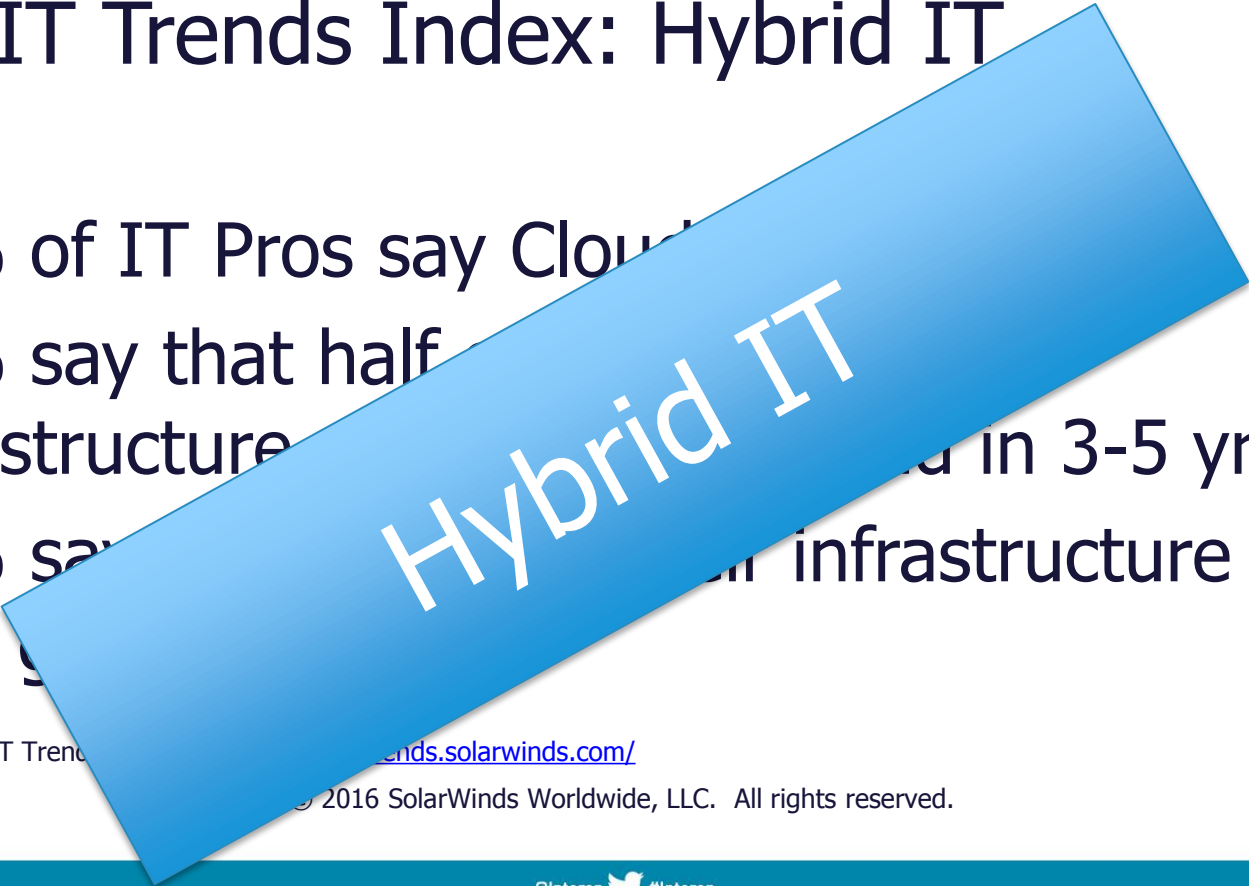
- 92% of IT Pros say Cloud is important
- 43% say that half or more of their IT infrastructure will be cloud bound in 3-5 yrs
- 60% say unlikely all of their infrastructure will ever go to Cloud

From SolarWinds IT Trends Index 2016. <http://it-trends.solarwinds.com/>

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# 2016 IT Trends Index: Hybrid IT

- 92% of IT Pros say Cloud is the future of IT infrastructure
- 43% say that half of their IT infrastructure will be in the cloud in 3-5 yrs
- 60% say that their IT infrastructure will eventually be 100% cloud



From SolarWinds IT Trends Index [solarwinds.com/it-trends](https://solarwinds.com/it-trends)

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# 2016 IT Trends Index: Barriers

- Security & compliance
- Need to support legacy
- Budget limitations



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# 2016 IT Trends Index: IT Pro Needs

- Only 27% are sure their IT org has enough resources to manage Hybrid IT
- Top 5 disciplines needed:
  - Hybrid IT monitoring/management;
  - App migration;
  - Distributed architecture;
  - Service-oriented architecture;
  - Automation/Vendor management
- 56% have support from leadership

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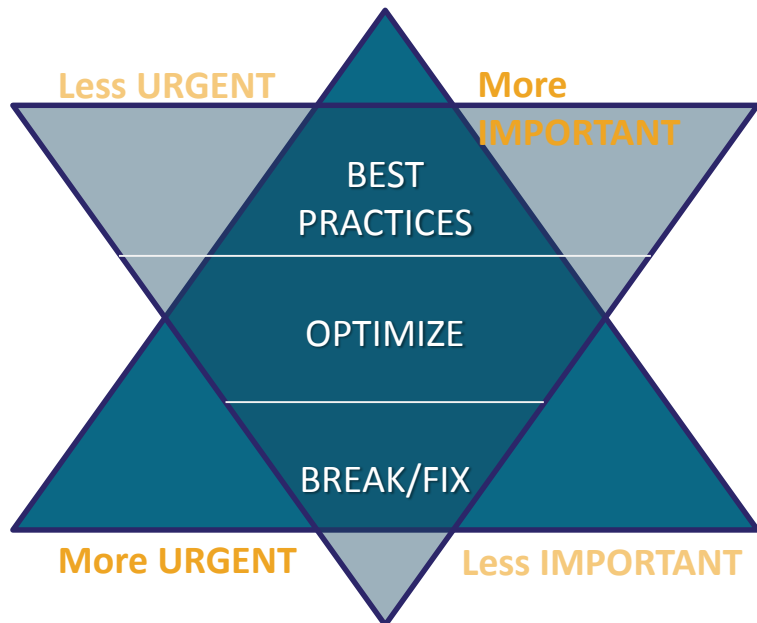
# Disrupting IT

- New technology
- New processes
- New people?

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# Ninja Star Mindset

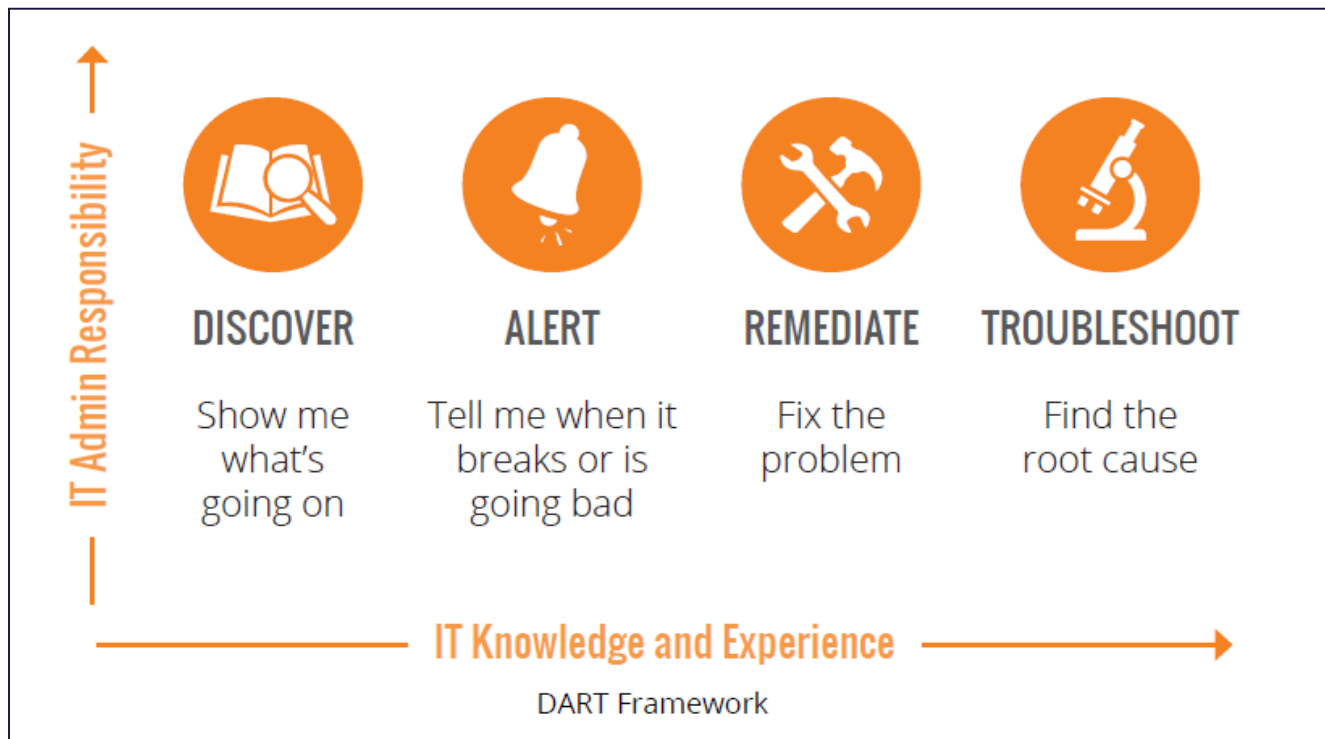
TRANSFORMATIONAL



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REACTIONAL

# DART Framework



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# Discover

- Show me what's going on

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# Discover

- Resource Sprawl
- Shadow IT/Innovation

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## STEPS TO IDENTIFY AND ELIMINATE VM SPRAWL

1. USE A PERFORMANCE MONITORING TOOL TO CAPTURE VM UTILIZATION DATA ACROSS KEY METRICS LIKE CPU, MEMORY, DISK, AND NETWORK.
2. USE A LOG EVENT MANAGEMENT TOOL TO CAPTURE AUTHENTICATED LOGIN AND REMOTE ACCESS ON VMS.
3. IF THERE IS NO UTILIZATION AND NO AUTHENTICATED ACCESS OVER AN EXTENDED PERIOD OF TIME (MULTIPLE DAYS OR WEEKS OF NO USAGE OR NO LOGIN), THEN THAT VM IS A GOOD CANDIDATE FOR DECOMMISSIONING AND RECYCLING ITS RESOURCES BACK INTO THE RESOURCE POOL.
4. THIS SAME METHOD CAN BE APPLIED TO CLEAN UP ORPHANED SNAPSHOTS.

## STEPS TO IDENTIFY AND GOVERN SHADOW IT.

1. IF YOU CAN GET ALL THE LOGIN CREDENTIALS, THEN YOU CAN SIMPLY EXPORT THE ASSET LIST FROM MOST OF THE CLOUD SERVICE PROVIDER'S MANAGEMENT CONSOLE.
2. IF YOU CAN'T GET ALL THE CREDENTIALS OF SHADOW IT USERS, THE IT DEPARTMENT SHOULD MONITOR TRAFFIC TO AND FROM THEIR DATA CENTERS AND ON THEIR NETWORKS.
3. HAVE A CONVERSATION WITH BUSINESS UNITS TO FIND COMMON GROUND ON INNOVATION AND IT GOVERNANCE.

# Alert

- Let me know when something is about to break or if it is broken

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# Alert

- USE or event based
  - Utilization
  - Saturation
  - Errors

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**All Active Virtualization Alerts (78)** ALL ACTIVE ALERTS EDIT HELP

ALL UNACKNOWLEDGED ALERTS Where do these alerts come from? Alert Legend

ALERT NAME	MESSAGE	TRIGGERING OBJECT	ACTIVE TIME
VM Disk Latency	Read or write latency to any...	tex-rdm-01	
Datastore Overallocation	Fires when the total "provisi...	tex-esx-01:LocalStorage02	10m
VM - No heartbeat	No heartbeats are being rec...	syd-2k8-2luns	28m
Datastore High Latency	Latency spent by storage I/...	VeeamBackup_LAB-VEEA...	35m
High VM CPU Utilization	CPU utilization of the VM ov...	bas-2k8-01	35m
Host memory utilization	Memory utilization of the Ho...	bas-esx-01.lab.tex	35m
VM memory swap	Amount of memory being s...	2k8-01	2h 28m
VM Phantom Snapshot Files	Finds VMSN files on the dat...	NetApp_nfs01_tex_esx_01	2h 40m
VM Phantom Snapshot Files	Finds VMSN files on the dat...	tex-esx-02:LocalStorage01	2h 40m
VM Phantom Snapshot Files	Finds VMSN files on the dat...	tex-esx-01:LocalStorage01	2h 40m

« | « | Page  of 8 | » | » | Items on page  | Show all | Displaying objects 1 - 10 of 78

**Potential Virtualization Issues (238)** ALL ACTIVE ALERTS EDIT HELP

Where do these alerts come from? Alert Legend

87	VMs with Bad Tools	VMs whose tools status is not OK
11	VMs with Connected Media	VMs with connected media is one element that can p...
28	VMs With More Allocated Space than Used	Fires when a VM has more than 1GB difference bet...
50	VMs with Old Snapshots	VMs with snapshots created more than 30 days ago
35	VMs with Large Snapshots	VMs with snapshots using more than 2 GB storage s...
1	VM Memory Limit Configuration	The alert fires when the memory limit is less than the ...
26	Inactive VMs - disk	VMs whose VMDK file(s) have not been accessed for ...

**Categories without issues (13)**

0	Cluster low VM capacity	The alert fires when the predicted number of VMs th...
0	Cluster memory utilization	Memory utilization of the cluster
0	Cluster predicted CPU depletion	The alert fires when the predicted time remaining unt...
0	Cluster predicted disk depletion	The alert fires when the predicted time remaining unt...
0	Cluster predicted memory depletion	The alert fires when the predicted time remaining unt...
0	Datastore Excessive VM Log Files	Fires when the size of the log files on a datastore rise...
0	Disk 100% within the week	The predicted time remaining before this datastore hi...
0	Guest storage space utilization	Amount of disk space available inside the guest is les...
0	Host CPU utilization	CPU utilization of the host reaches 70%
0	Host rebooted	Host that has been rebooted within the past 30 minutes

« | « | Page  of 2 | » | » | Items on page  | Show all | Displaying objects 1 - 10 of 13

# Remediate

- Fix it

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# Remediate

- 3 words for IT Queasy
  - Puts out fires

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## 1. STOP.

- ASSESS THE SITUATION.
- FOCUS ON THE STEPS THAT WILL LEAD TO RESOLUTION.

## 2. DROP.

- DROP ALL DISTRACTIONS LIKE UNNECESSARY AND UNCONNECTED SERVICES AND PROCESSES.
- REMOVE ALL UNNECESSARY PSEUDO-IT CHEFS FROM THE VIRTUAL KITCHEN. THIS MEANS ANYONE NOT DIRECTLY RESPONSIBLE FOR AND CONNECTED TO THE STACK THAT YOU'RE TRYING TO RESTORE.

## 3. ROLL.

- ROLL OUT YOUR RECOVERY PLAN TO GET YOUR SYSTEMS, APPS, AND VMS BACK IN WORKING ORDER.
- MONITOR KEY PERFORMANCE INDICATORS TO MAKE SURE THE SYSTEMS AND APPS ARE STABLE FOLLOWING THE FIX.

# Troubleshoot

- Find the root cause

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# Troubleshoot

- Single point of truth

1. DEFINE THE PROBLEM.
2. GATHER AND ANALYZE RELEVANT INFORMATION.
3. CONSTRUCT A HYPOTHESIS ON THE PROBABLE CAUSE FOR THE FAILURE OR INCIDENT.
4. DEVISE A PLAN TO RESOLVE THE PROBLEM BASED ON HYPOTHESIS.
5. IMPLEMENT THE PLAN.
6. OBSERVE THE RESULTS OF THE IMPLEMENTATION.
7. REPEAT STEPS 2-6.
8. DOCUMENT THE SOLUTION.

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# Closing statements

- Use DART to fulfill CIO's SLA
  - Try not to get breached
  - Align IT with the business
  - Develop products faster
- And seal it with a K.I.S.S.

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# Additional Resources



Get the Geek's Perspective on the latest tech trends & topics:  
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