ITSM, DevOps and Swarming

SDI19 – Tuesday 26th March 2019

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Principal Product Manager, Digital Service Management
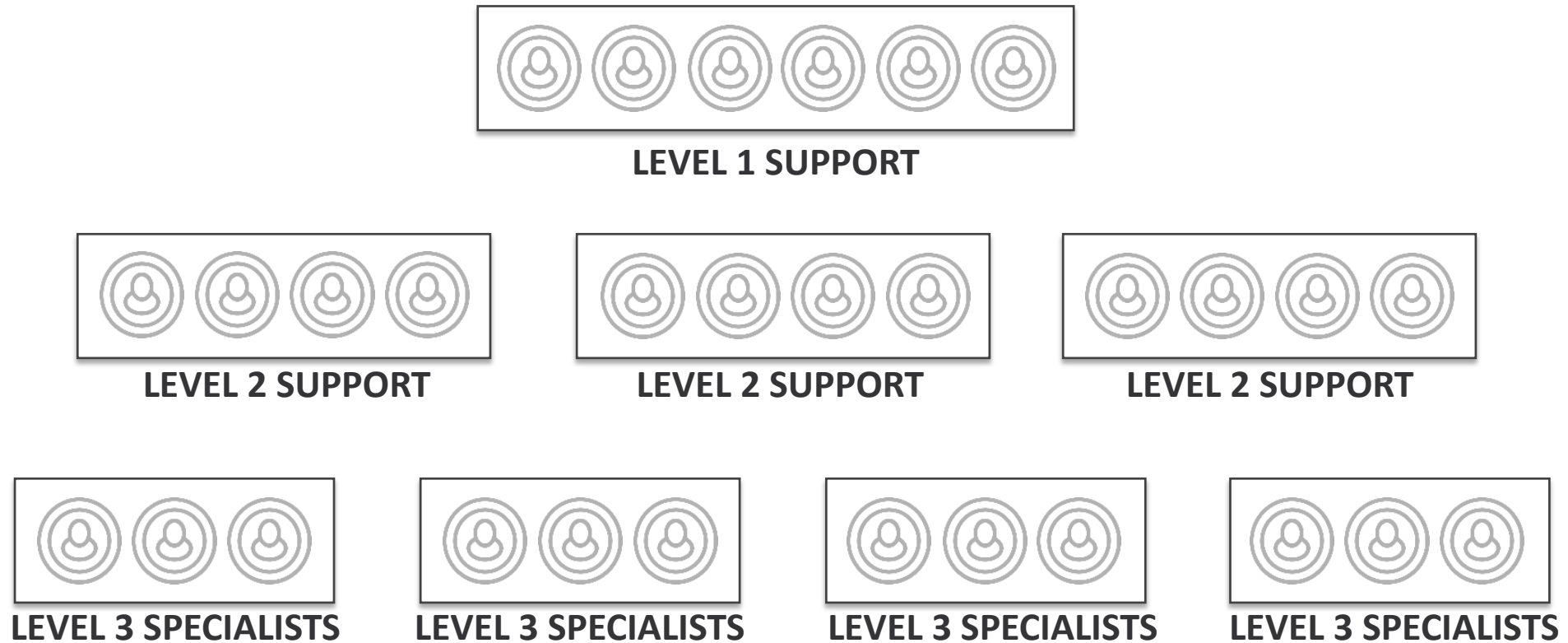
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"When I stepped outside the box, my colleagues really appreciated it. But management did not.
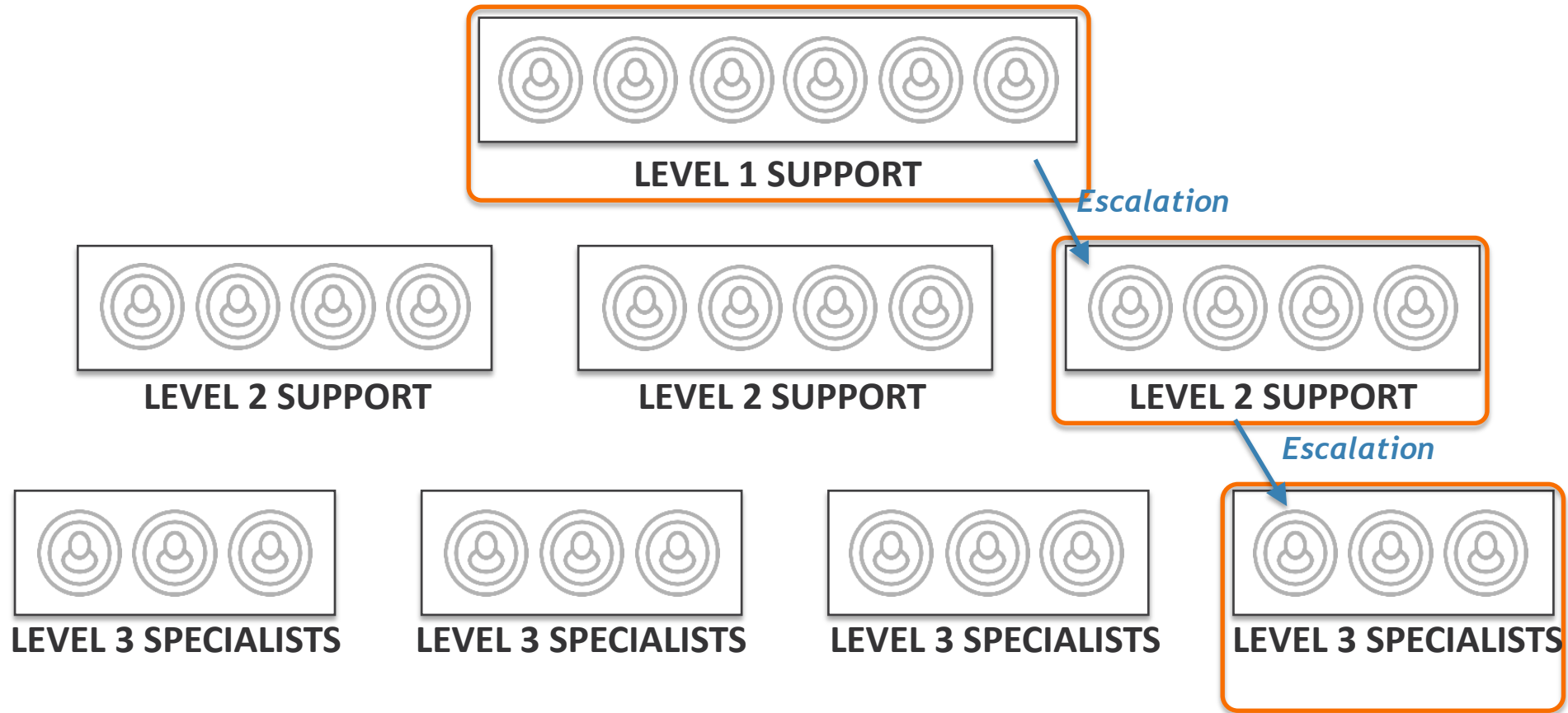*They put me back***.**

The people that excel and create the most value are the ones that step *outside* their box"

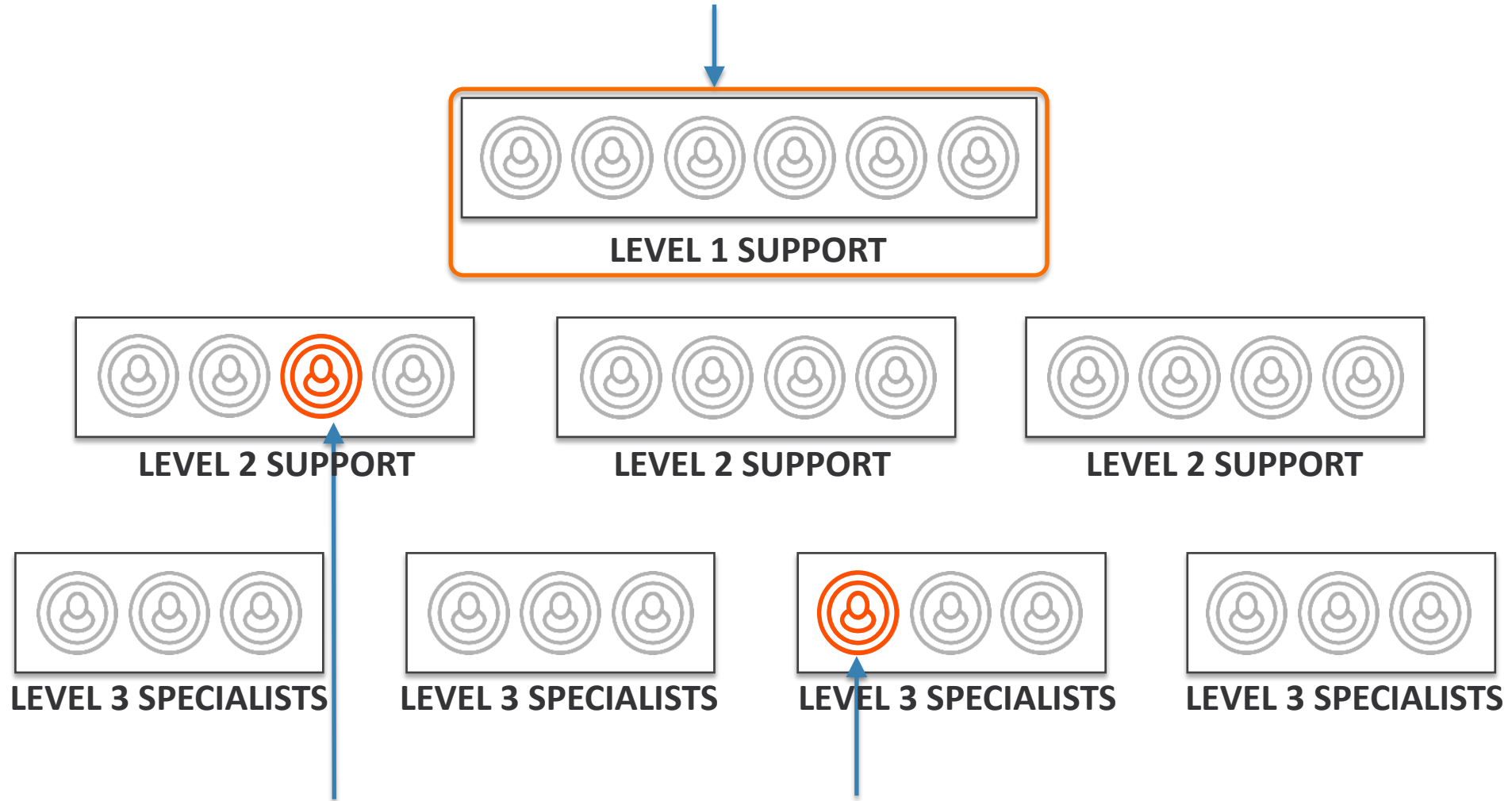Hank Barnes, Gartner: "Playing Outside Your Box" May 2018.

Classic "Tiered" Support Structure

LEVEL 1 SUPPORT

LEVEL 2 SUPPORT   **LEVEL 2 SUPPORT**   **LEVEL 2 SUPPORT**

LEVEL 3 SPECIALISTS   **LEVEL 3 SPECIALISTS**   **LEVEL 3 SPECIALISTS**   **LEVEL 3 SPECIALISTS**

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Deconstructing the "Tiered" Support Structure

Issues may spend time here

LEVEL 1 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

...when the answer is here...

...or here.

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When tickets eventually escalate...

LEVEL 1 SUPPORT

LEVEL 2 SUPPORT

LEVEL 3 SPECIALISTS
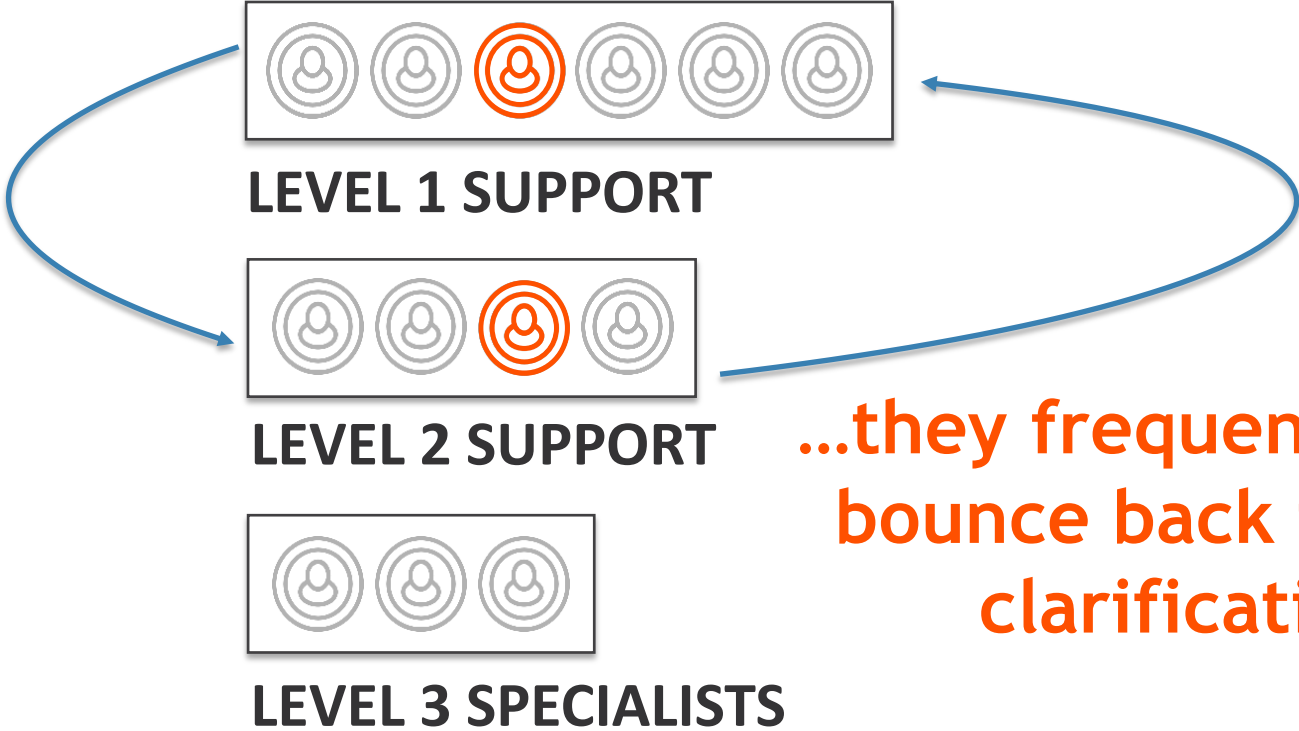
...they frequently bounce back for clarification

LEVEL 1 SUPPORT

LEVEL 1 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 3 SPECIALISTS
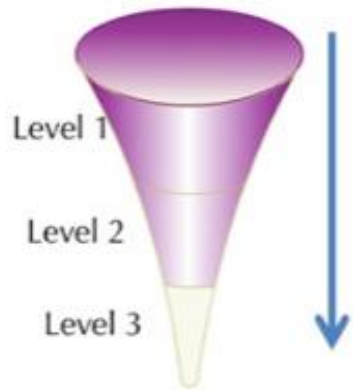
LEVEL 3 SPECIALISTS

SUBJECT MATTER EXPERT
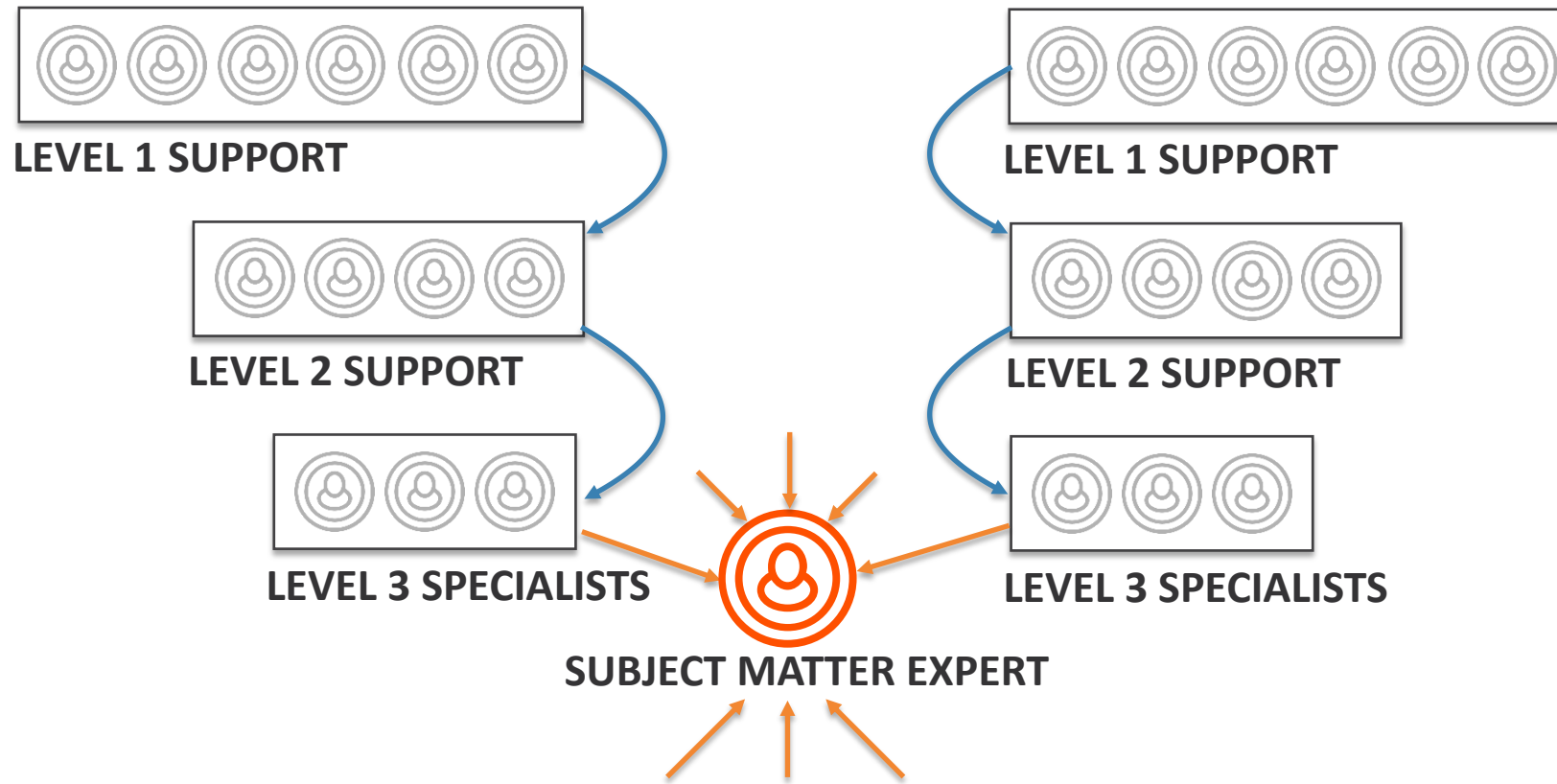
The system encourages "heroes" (not in a good way)

Swarming...

involves **removing the tiers** of support, and calling on the collective expertise of a "swarm" of analysts.

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Tiered support

Siloes and hierarchies

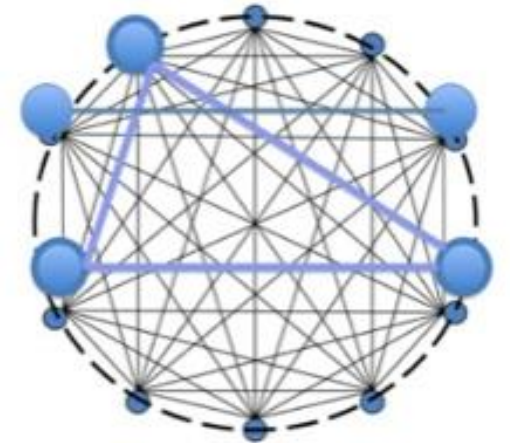Directed

Linear, rigid

Measured on activity

Swarming

Network

Collaborative

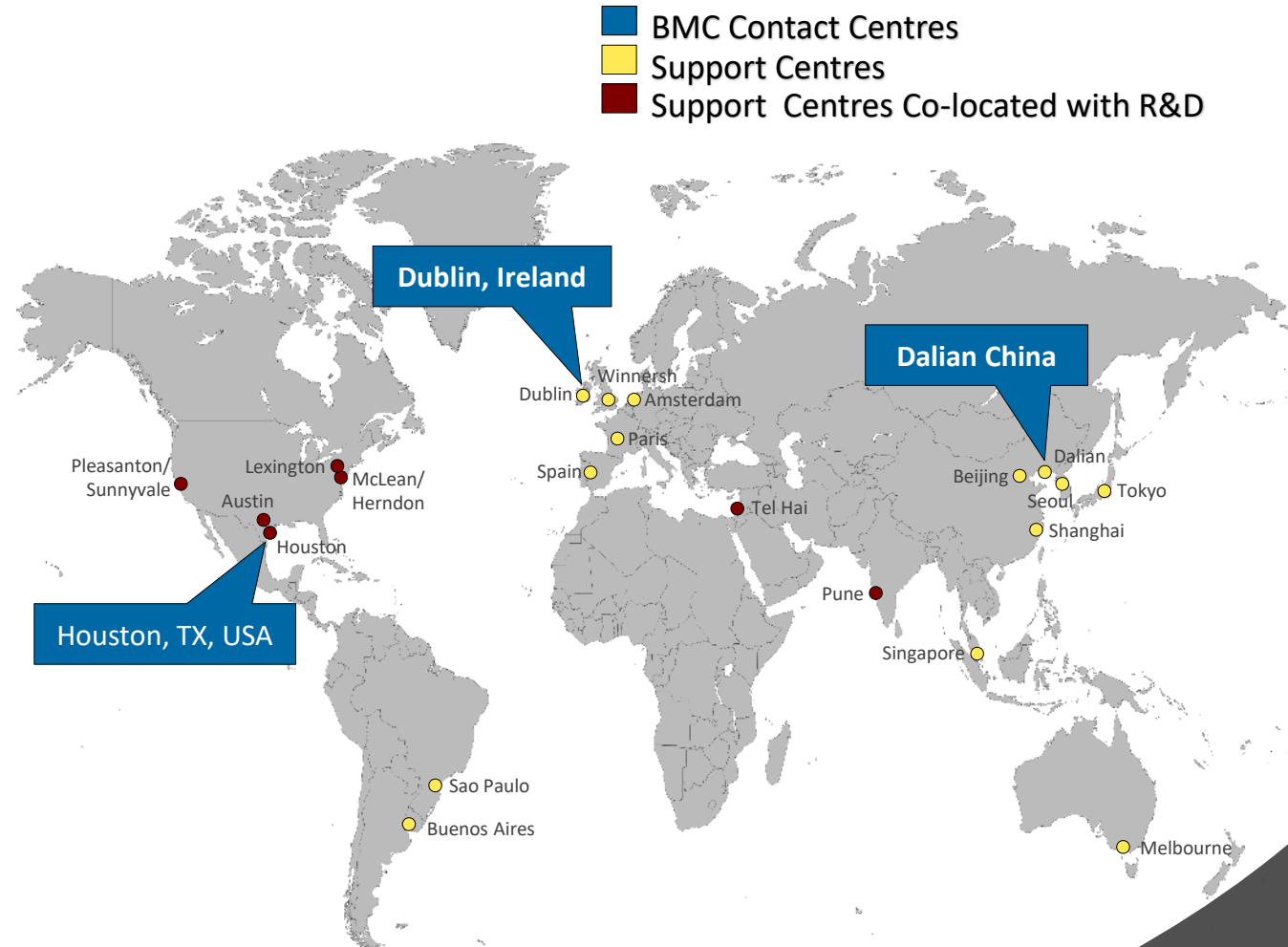Dynamic, loopy

Measured by value creation

BMC Customer Support

Global Support

- 24 hours, 365 days.
- Over 500 support specialists with over 2,600 years of combined experience
- 200,000+ incidents addressed each year
- Hiring focus on communication skills

Best Practices

- Knowledge-centred support (KCS)
- Industry Benchmarking
- Quality Management Processes
- Problem Management
- Collaboration and Swarming
- Support, Communities and Social Media

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Legend:
- BMC Contact Centres
- Support Centres
- Support Centres Co-located with R&D

Map locations:
- Dublin, Ireland
- Dalian China
- Houston, TX, USA
- Winnersh
- Dublin
- Amsterdam
- Paris
- Spain
- Pleasanton/Sunnyvale
- Lexington
- McLean/Herndon
- Austin
- Houston
- Tel Hai
- Beijing
- Dalian
- Tokyo
- Seoul
- Shanghai
- Pune
- Singapore
- Sao Paulo
- Buenos Aires
- Melbourne

Swarming at BMC

Severity 1 Swarm   Dispatch Swarm   Backlog Swarm

Swarming Process at BMC

Severity 1 Swarm

1%

Prioritise
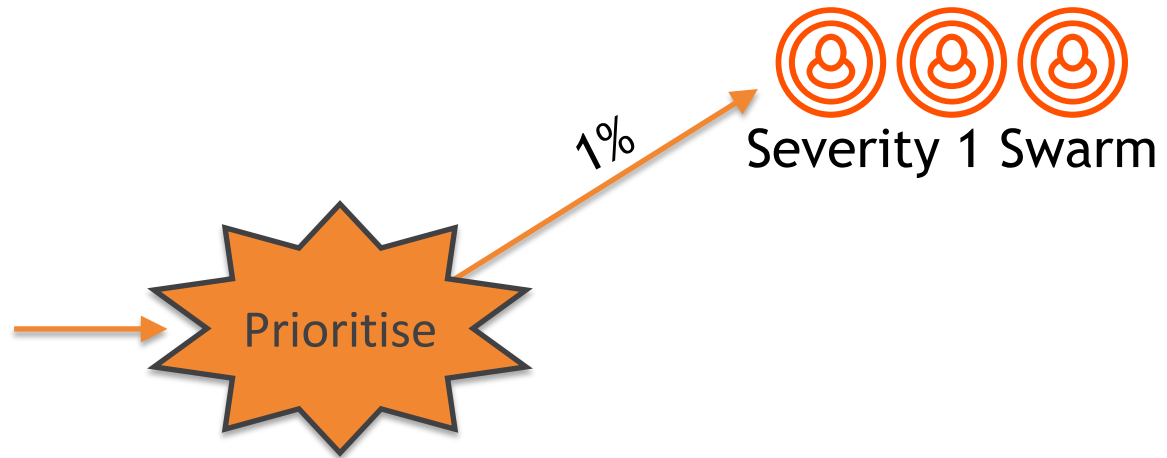
Severity 1 Swarm

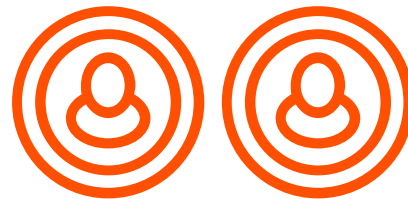- **Rapid responders**
  - Three agents on a scheduled one-week rotation
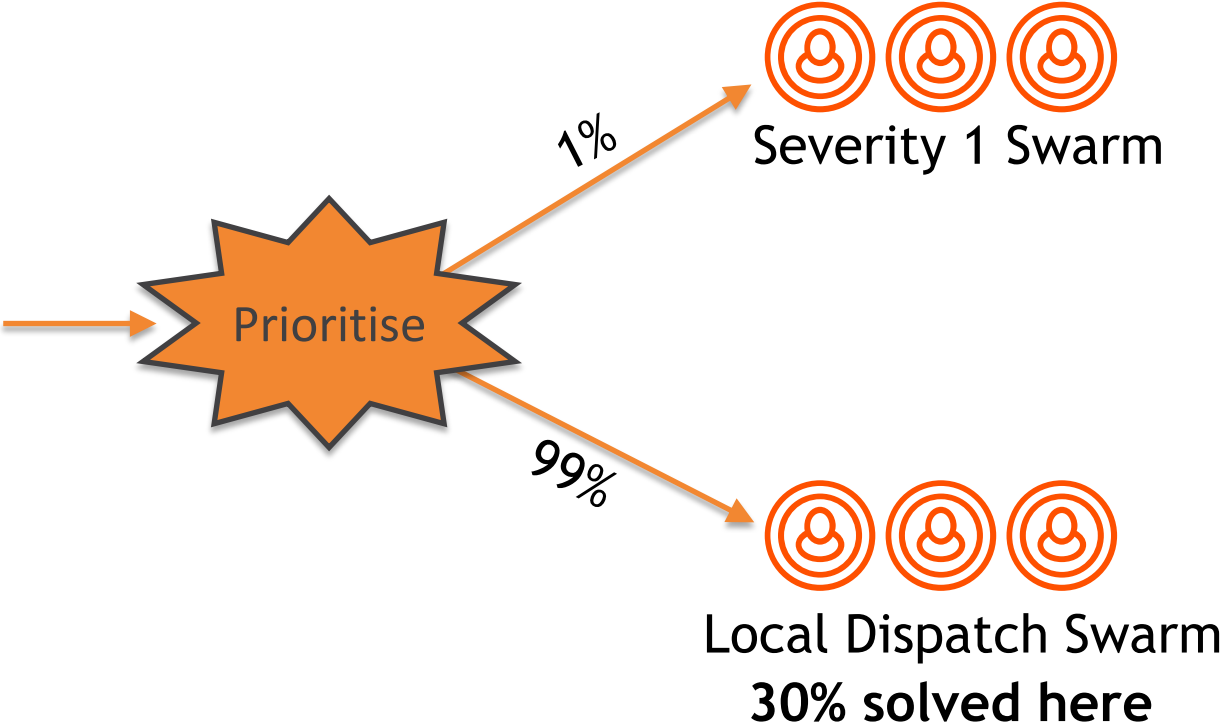 - Primary focus: Provide immediate response, and resolve as soon as possible

Swarm lead

Communications

Other members

Research, coordinate, test

Swarming Process at BMC

1%

Severity 1 Swarm

Prioritise

99%

Local Dispatch Swarm
30% solved here

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Dispatch Swarm

- **"Cherry pickers"**
  - Meet every 60-90 minutes
  - Primary focus: Can new tickets be resolved immediately?
  - Also: Validation of ticket details before assignment to specialists
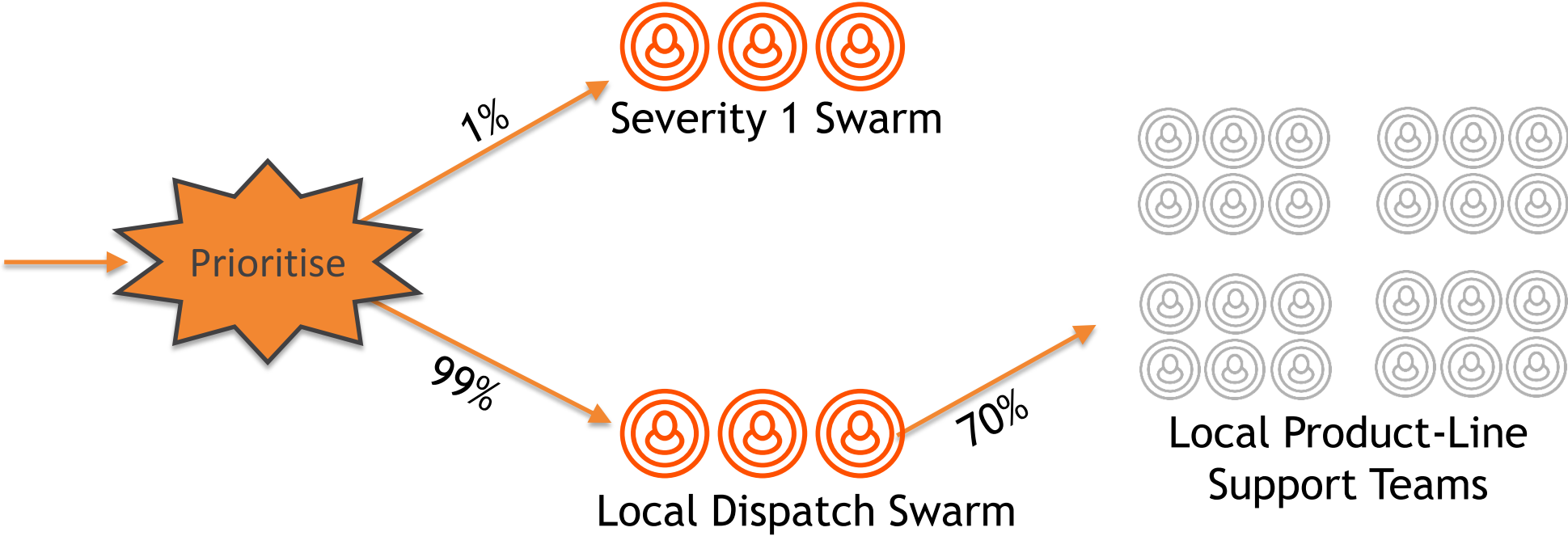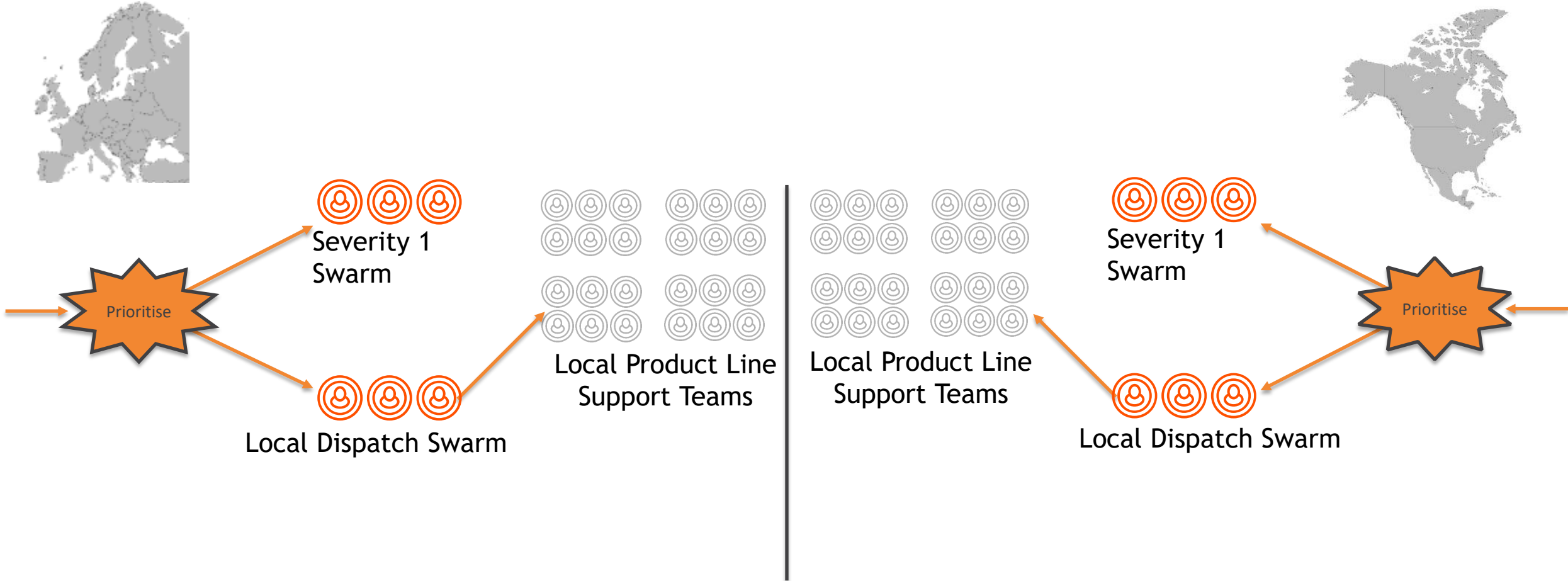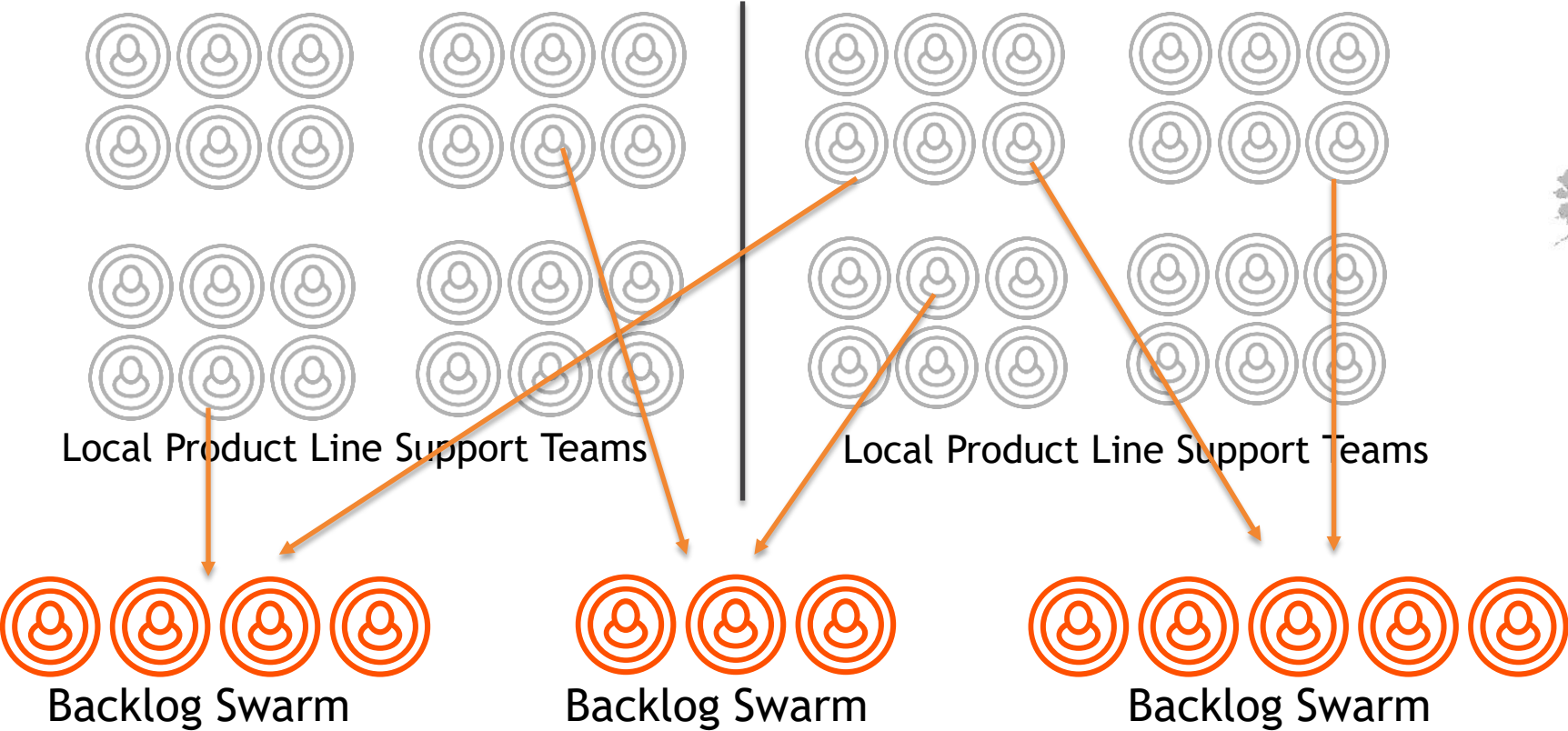
Experienced analyst

Less-experienced analyst

Swarming Process at BMC

Prioritise

1% → Severity 1 Swarm

99% → Local Dispatch Swarm

70% → Local Product-Line Support Teams

Swarming Process at BMC

Severity 1 Swarm

Prioritise

Local Dispatch Swarm

Local Product Line Support Teams

Local Product Line Support Teams

Severity 1 Swarm

Prioritise

Local Dispatch Swarm

@jonhall_

Swarming Process at BMC

Local Product Line Support Teams

Local Product Line Support Teams

Backlog Swarm

Backlog Swarm

Backlog Swarm

Backlog Swarms

- **Global fixers of troublesome tickets**
  - Meet regularly (often several times a day)
  - Primary focus: Challenging 3rd-line tickets
  - Replace reassignments and individual assignments

Experienced analysts

R&D Engineers

Results at BMC

- 25% median resolution time improvement
- Customer satisfaction up 8 points
- More issues closed in <2 days
- Significant reduction in backlogs
- Halved onboarding time
- Freed resources for innovative offerings

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Things we had to do to make it work

- Guidelines, not rules
- Metrics had to change (swarming breaks traditional ones!)
- Some people needed help to became more customer facing
- Banned ticket tennis and direct escalations to experts
- New tooling practices, particularly mobile and chat

Results at BMC

- 25% median resolution time improvement
- Customer satisfaction up 8 points
- More issues closed in <2 days
- Significant reduction in backlogs
- Halved on-boarding time
- Freed resources for innovative offerings

Another Swarming example – Telco's "chat servicedesk"
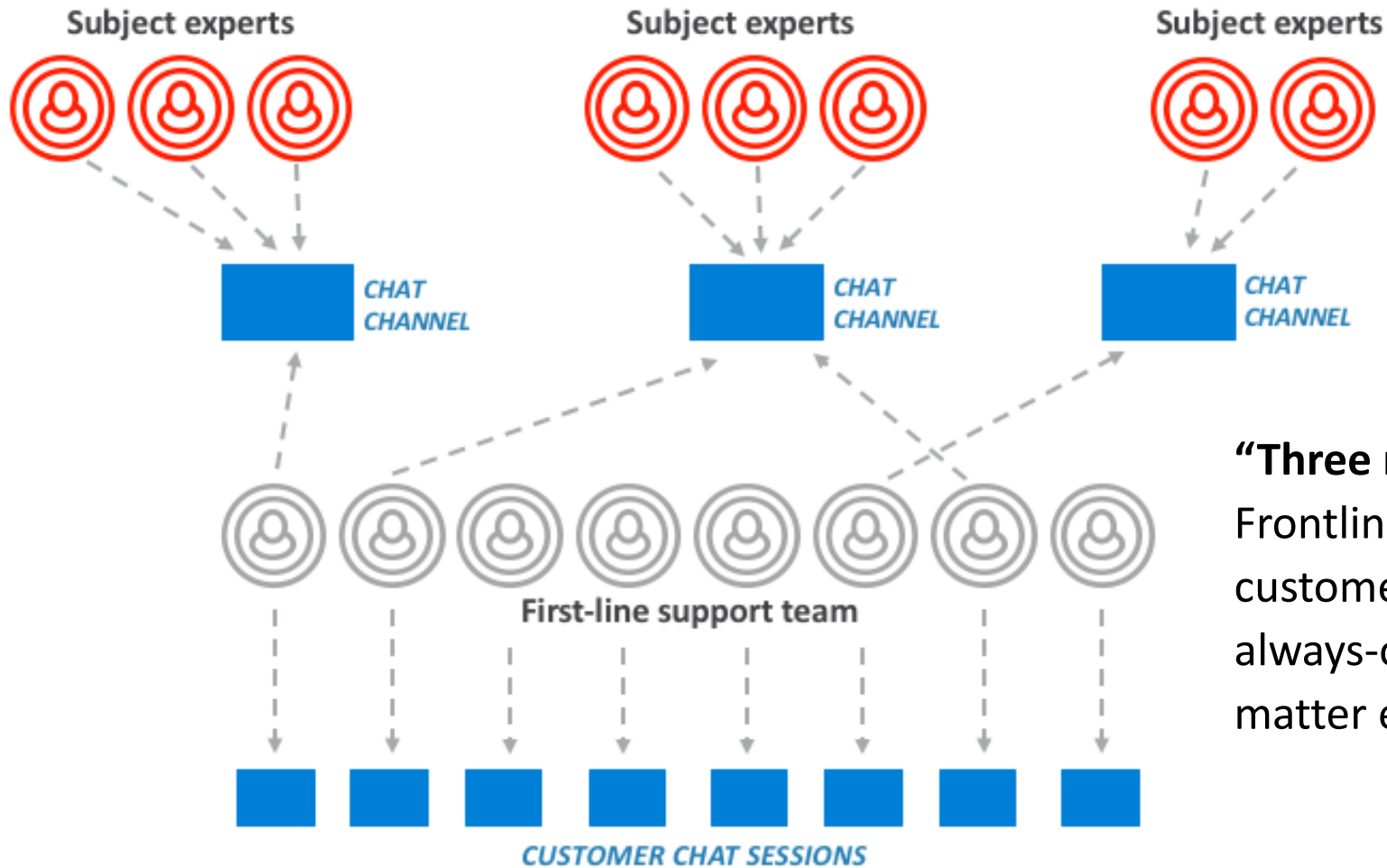
"Three minute swarming": Frontline support team can put customer on-hold, and jump into always-on chat room with subject matter experts

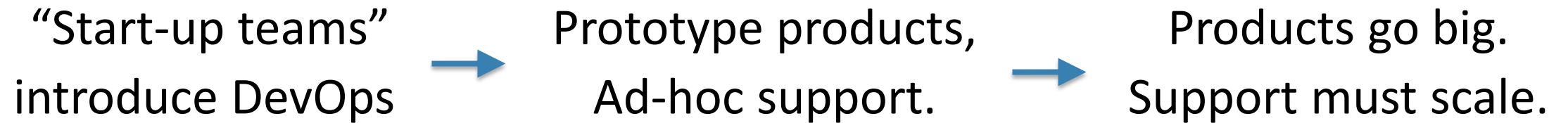@jonhall_

Making Swarming *Intelligent*

- Suggest Swarm participants based on contributions
- Encourage and reward
- Learn from each interaction
- Improve reliance of next interaction
- "Reputation" model

So... what does this all have to do with DevOps?

"IT organizations that have tried to custom-adjust current tools to meet DevOps practices have a failure rate of 80%"

*DevOps and the Cost of Downtime: Fortune 1000 Best Practice Metrics Quantified (**IDC**, 2014)*
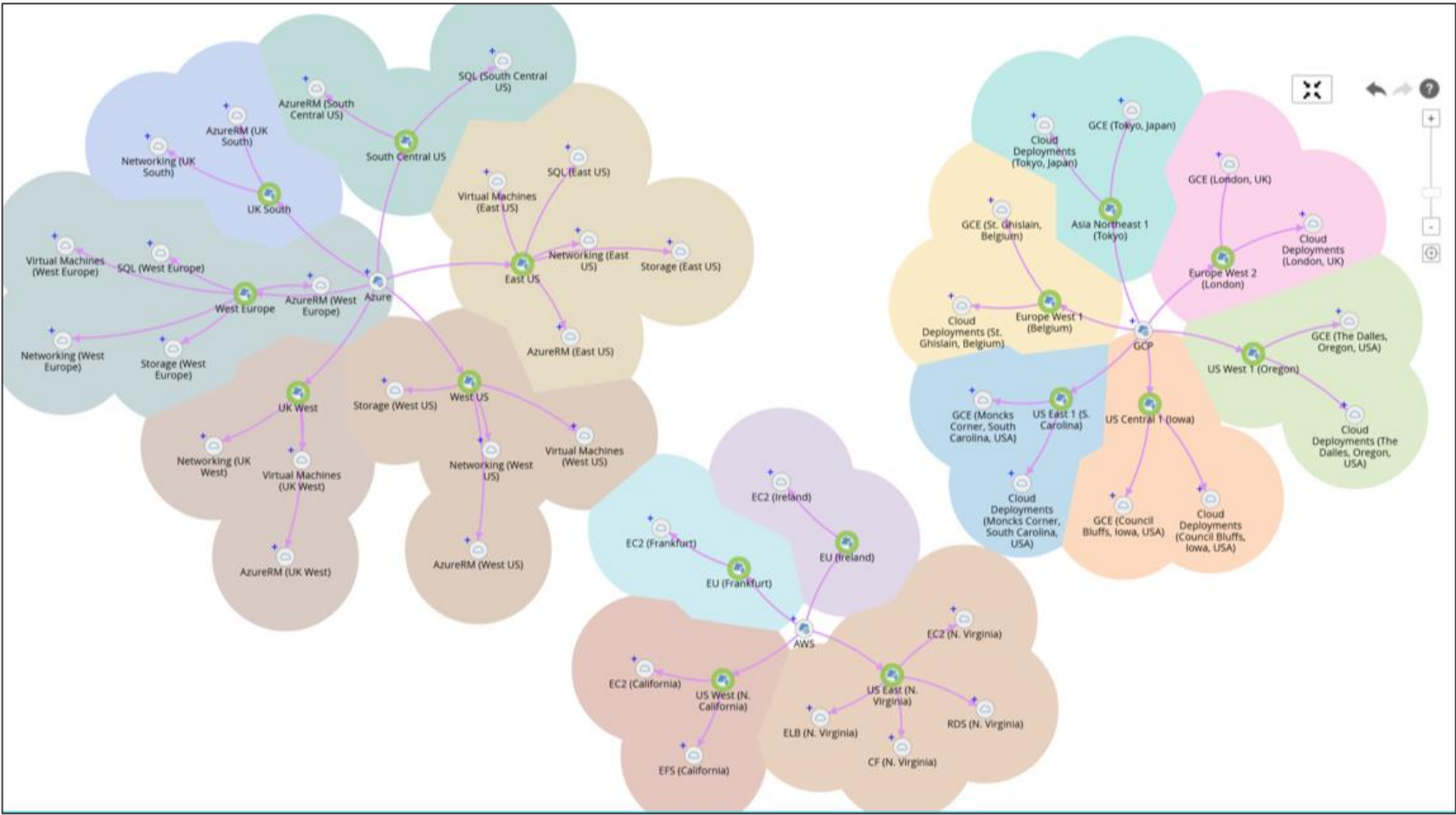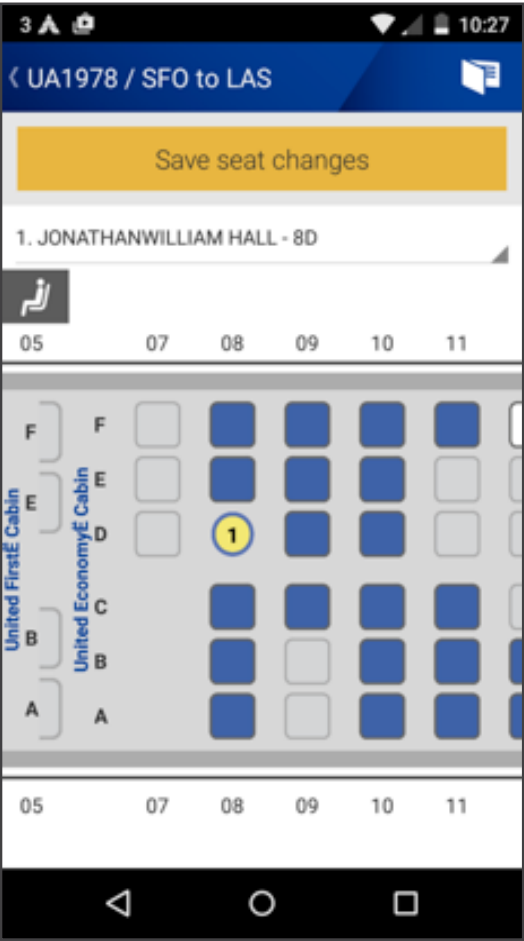
DevOps adoption in enterprises

"Start-up teams" introduce DevOps → Prototype products, Ad-hoc support. → Products go big. Support must scale.

DevOps Enterprise Summit speakers (a sample), 2018

Enterprise systems are complex

DevOps challenges Service Desk orthodoxies...

- New services and applications suddenly appear
- Lost visibility when issues go to developers
- Lack of knowledge sharing
- New kinds of customer, especially external

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…but enterprise realities challenge DevOps

- Scaling customer support
- Understanding the context of an issue
- Adaptation to life "on call"
- What to prioritise? Fix bugs or build new stuff?
- How to process alerts, particularly if noisy/low-quality.

There's still a big role for enterprise Service Management, particularly at scale.

Time Spent	Elite	High	Medium	Low
NEW WORK	**50%**	**50%**	**40%**	**30%**
Unplanned work and rework	19.5%	20%[a]	20%[a]	20%[a]
Remediating security issues	5%	5%[b]	5%[b]	10%
Working on defects identified by end users	10%	10%[c]	10%[c]	20%
Customer support work	5%	10%	10%	15%

2018 State of DevOps Report

"The enterprise space doesn't move slowly because they're stupid, or they hate technology.

It's because they have *users*"

Luke Kanies, Puppet Founder, Configuration Management Camp 2015, Belgium.

How to annoy a DevOps practitioner

- Work-in-progress queues
- Asynchronous communication
- Single role teams
- Individual over-exposure
- Lack of knowledge sharing

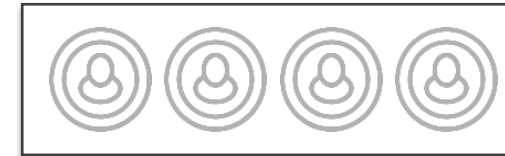# Where have we seen those things before?

LEVEL 1 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

Global car manufacturer: Connected Vehicles Division

Challenge: how to scale support to 6+ million new vehicles *every year.*

- *"You've got to go where people are" – Senior developer*
- Tiered support would mean 4-5 days to get to the right team
- First Responders instigate and coordinate ad-hoc swarms for big issues
- Other teams have 1 person on rotation for swarming
- Swarm grows and shrinks as necessary
- Swarm may include engineers from Amazon, Microsoft, etc.

Swarming aligns *really* well to DevOps

- Autonomy and self-organisation
- Knowledge transfer and skills development
- ChatOps, not email
- Prevention of accumulation of queued work
- Protection of individuals from burnout

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Swarming as a means of delivering Cynefin?

- Wait… What?
- Pronounced *"kuh-nev-in"*
- Developed by Dave Snowden while at IBM in 1999
- Taken independent in 2005
- The word *"signifies the multiple factors in our environment and our experience that influence us in ways we can never understand"*

- **Obvious** and **Complicated** domains:
  - Repeating relationship between cause and effect
  - With **Complicated** you need to do analysis to *find* that relationship

- **Complex** domain:
  - Understanding the problem requires experimentation and analysis.
  - May, over time, be able to move to **Complicated**

- **Chaotic** domain:
  - Dramatic and unconstrained
  - Focus on damage limitation, try to move to another domain

"Obvious" Domain

Customer

Self-Service Portal

Service Desk Analyst
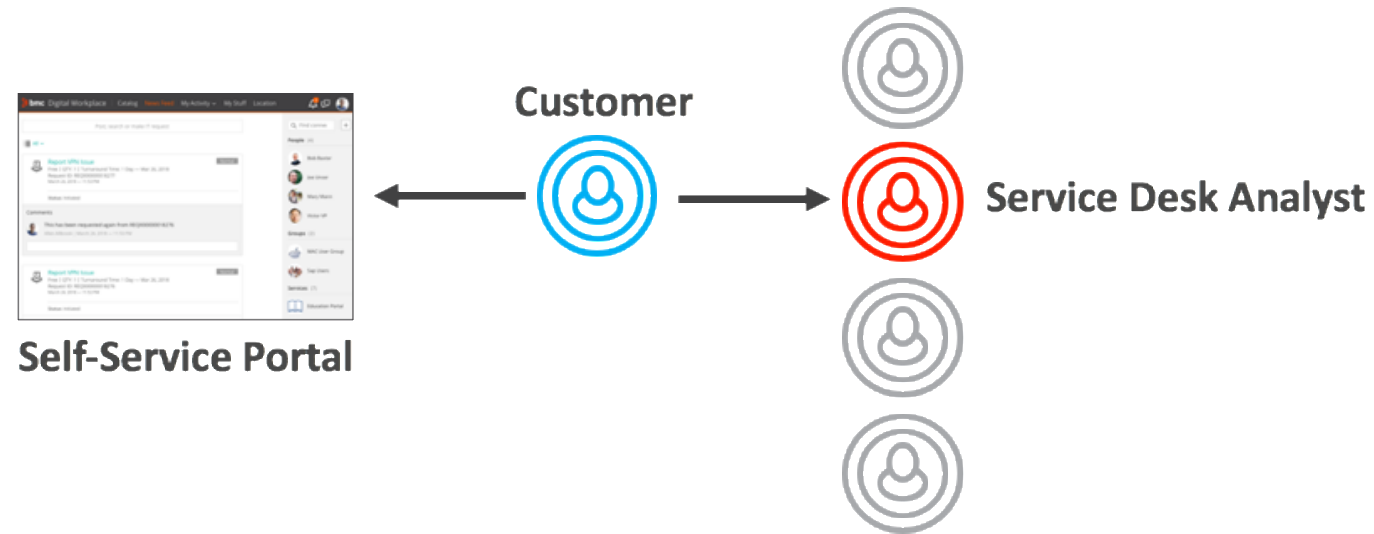
- *"Sense, Categorise, Respond"*
- Template/knowledge-driven resolution
- Self service

"Complicated" Domain

Swarm Lead
Swarm assistant

- *"Sense, Analyse, Respond"*
- Dispatch-type swarm – pair up agents with varied experience
- Capture detailed knowledge for organizational learning

"Complex" Domain

- *"Probe, Sense, Respond"*

Phase 1: Initial analysis
* Understand issue
* Identify participants for information gathering

"Complex" Domain

- *"Probe, Sense, Respond"*

Phase 1: Initial analysis
* Understand issue
* Identify participants for information gathering

Phase 2: Start to Probe
* Gather data and insights
* Theorise options
* Determine subgroups
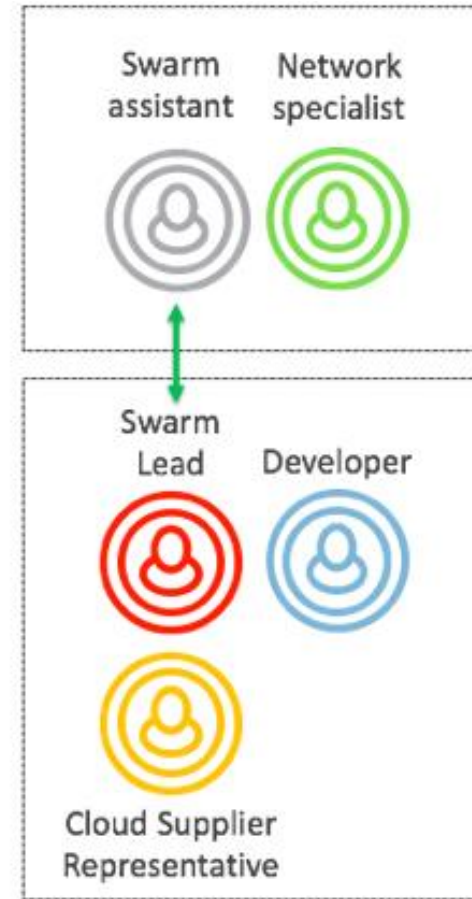
Phase 3: Continue to Probe
* Investigate theories
* Communicate between Lead and Assistant
* Eliminate false theories and determine next steps

Phase 4: Respond
* Assemble swarm team required to solve
* Resolve issue and document steps

"Chaotic" Domain

- *"Act, Sense, Respond"*
- Sub-swarms
- Deal with the acute situation
- Try to discover sufficient
  information to move to complex

Swarm Lead

Customer Liaison

Workaround/
Temporary Restoration

Initial Analysis
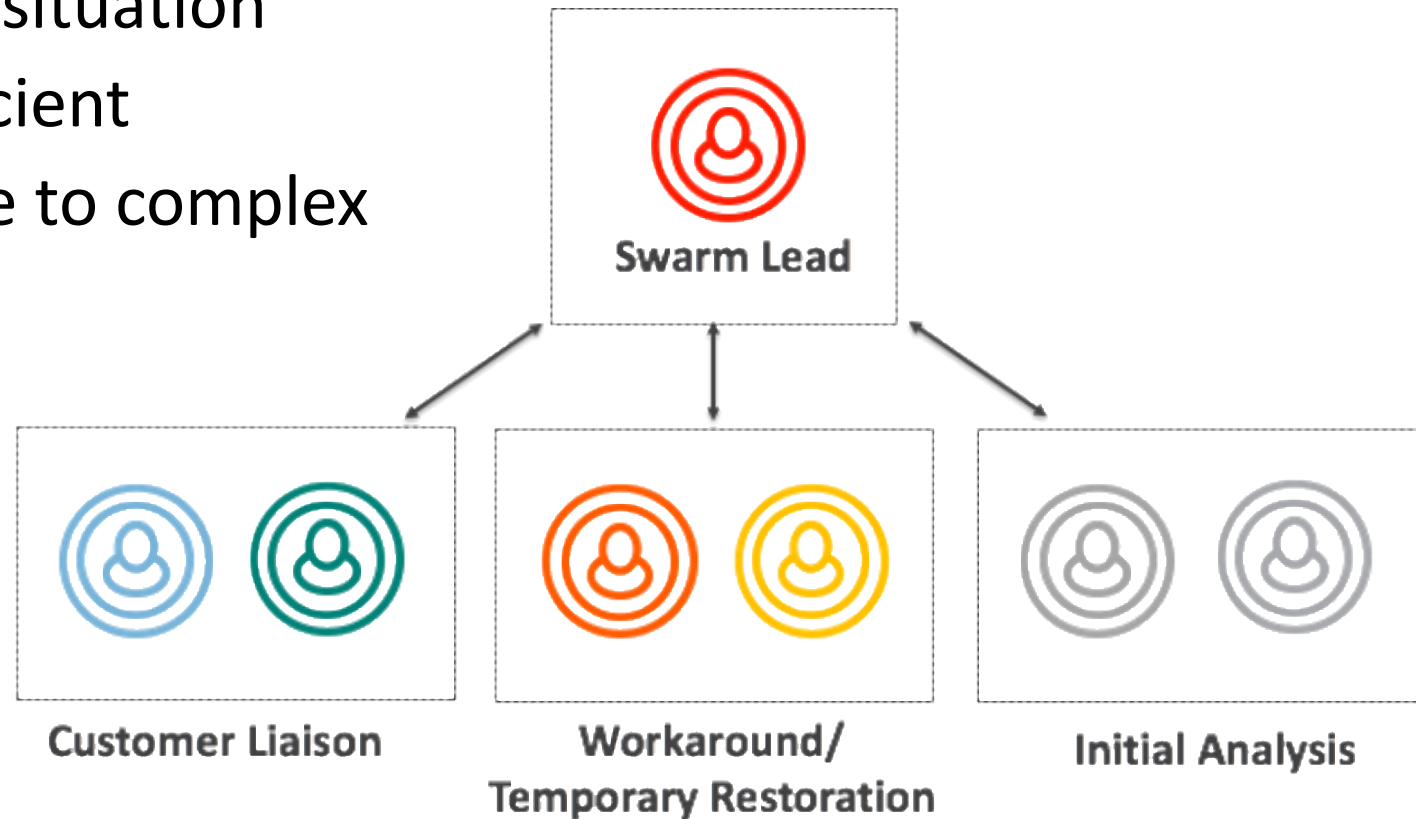
Issues reported by Swarming early adopters

- May increase costs even if other metrics improve
- Can be difficult to evaluate individual contribution
- "Cradle to grave" ownership across time zones
- Some individuals may dominate
- Finding the right people for a swarm is difficult

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"Swarming works better than conventional processes.

I am able to get *multiple experiences* from swarm attendees of similar cases they have worked.

If there are no experiences, then it's *perspectives: Decades of experience*"

Senior Support Analyst, BMC

"I have probably *doubled* my knowledge of the products in a year because of Swarming... and I have been here a long time"

Senior Support Analyst, BMC

Swarming appearing in ITSM frameworks

> **Tip**
>
> Some organizations use a technique called swarming to help manage incidents. This involves many different stakeholders working together initially, until it becomes clear which of them is best placed to continue and which can move on to other tasks.

ITIL® 4 Foundation (2019)

Real World Example
Using swarms for support

Swarming is originally an Agile software development concept, which refers to a situation where everyone on the team works on the same story or task at the same time. In this real-world segment, swarming is applied to improve an organization's response to service consumers and to increase knowledge sharing within the teams providing the consumer response.

VeriSM – A service management approach for the digital age (2017)

Some more information

serviceinnovation.org/intelligent-swarming   medium.com/@jonhall_

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