DevOps Enterprise Summit 2018 – Las Vegas

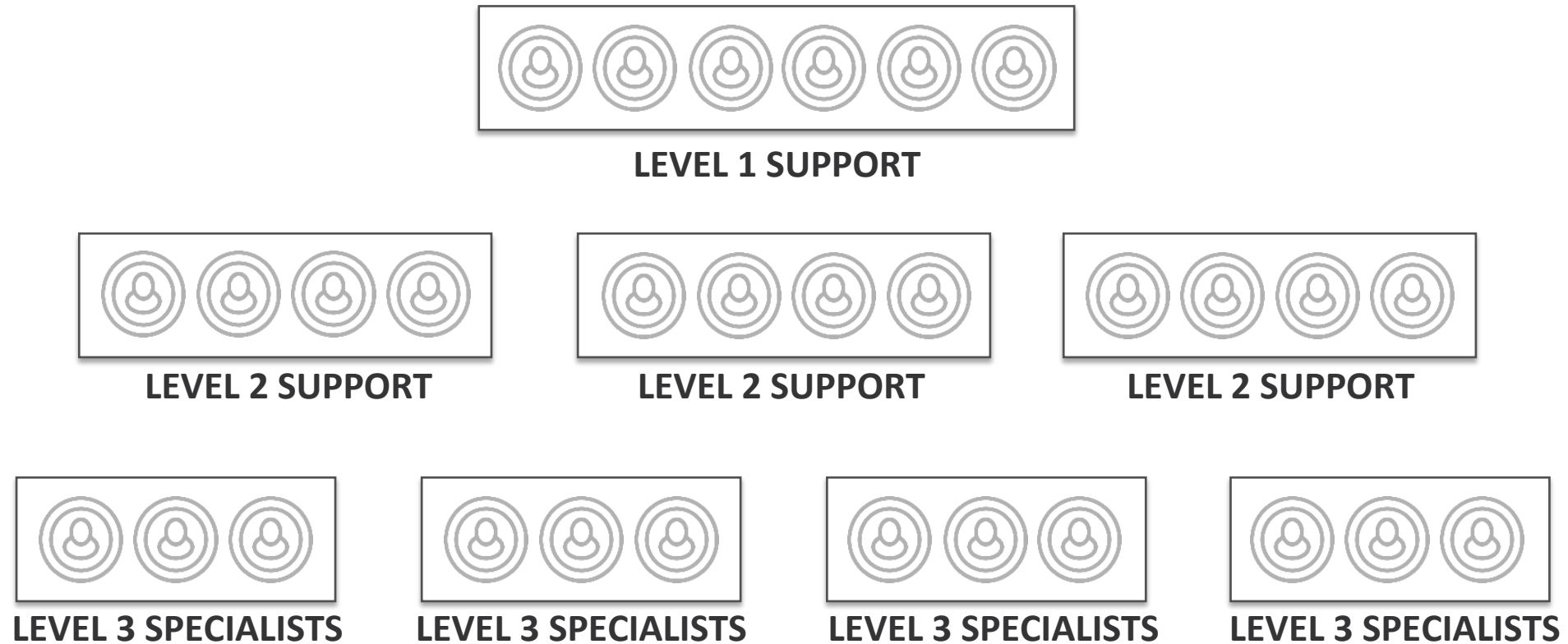# The Problem of Becoming a 3rd-Line Support Team (& Why Swarming Works better for DevOps!)
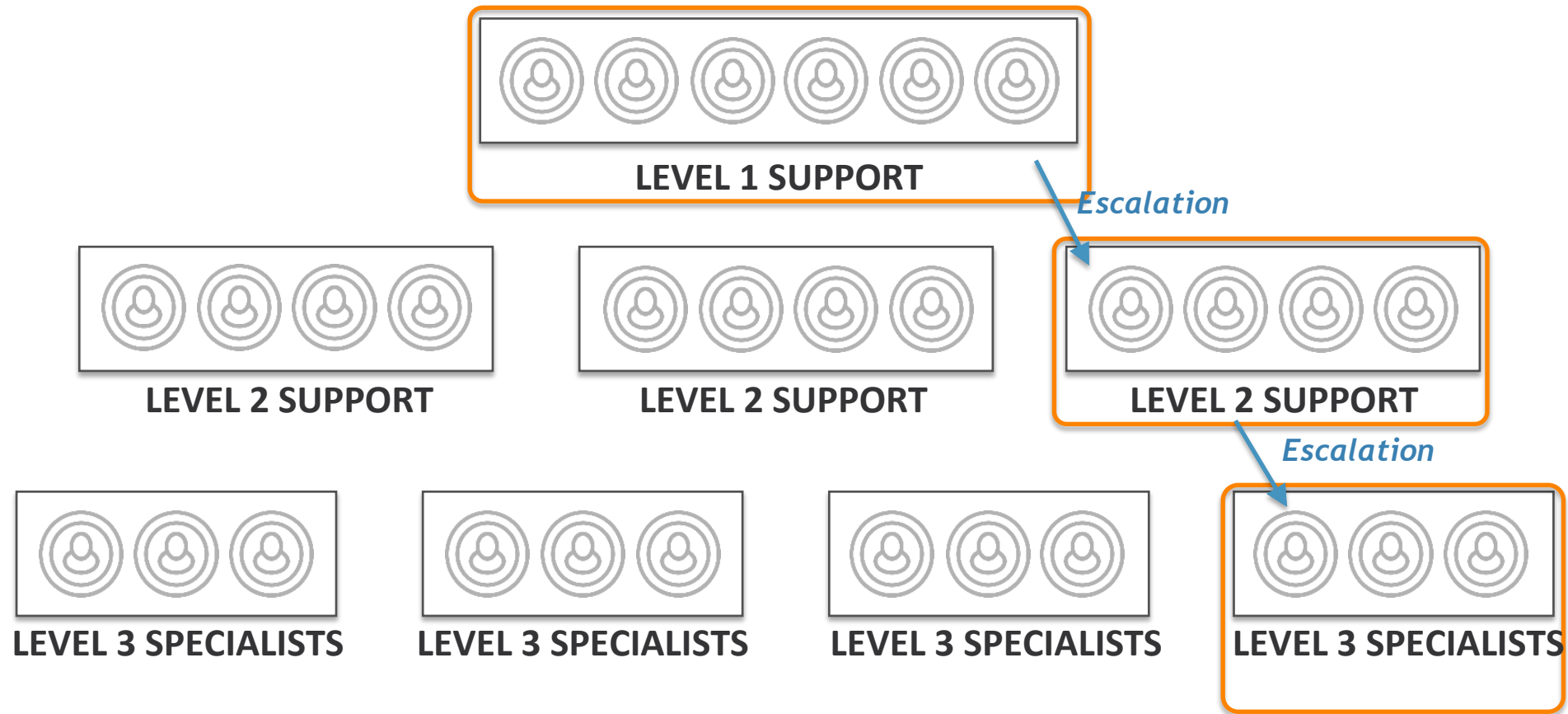
Jon Hall
Principal Product Manager, BMC

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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.

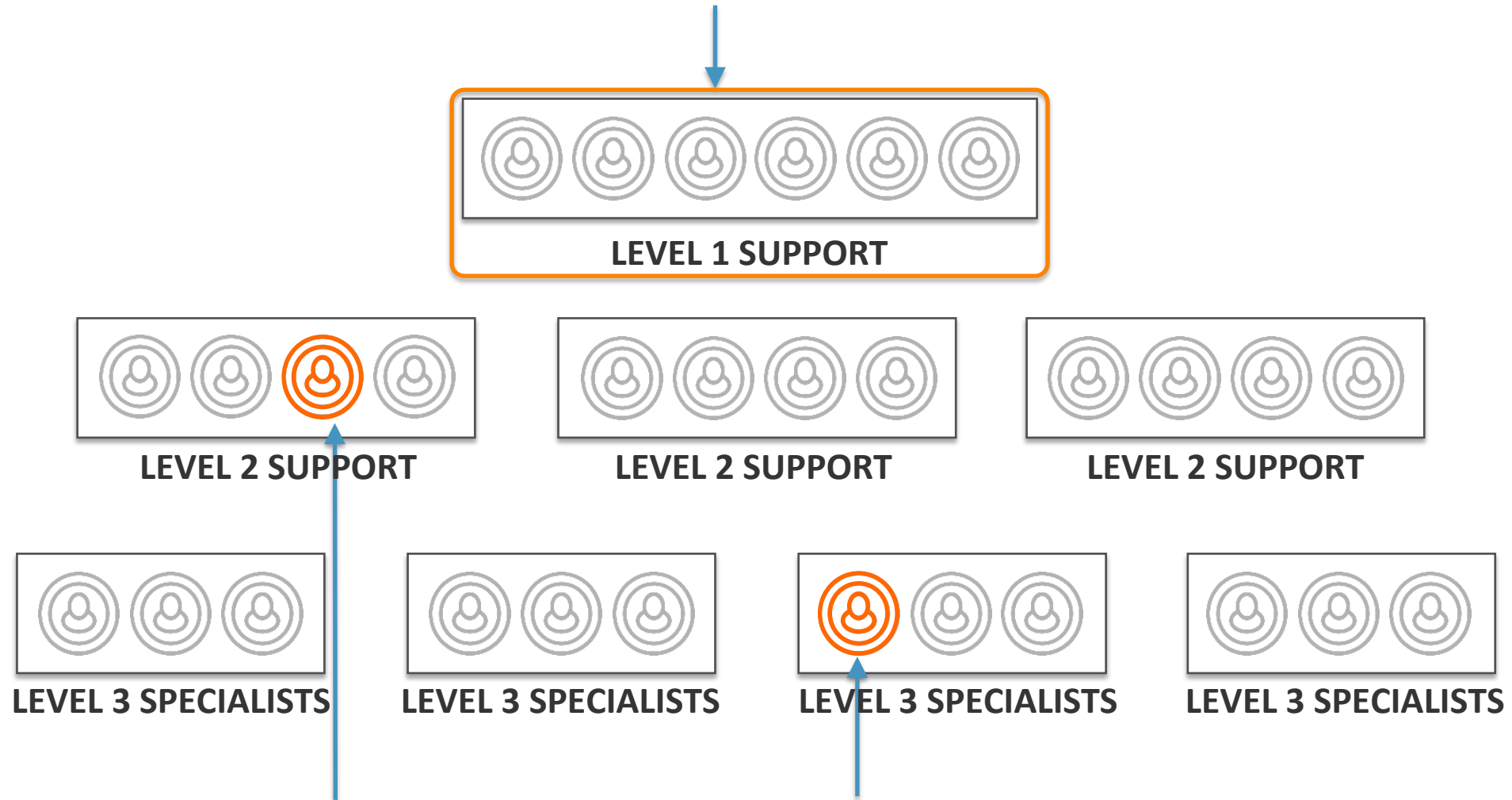# Classic "Tiered" Support Structure

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

LEVEL 1 SUPPORT

Escalation

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

Escalation

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

LEVEL 3 SPECIALISTS

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

...they frequently bounce back for clarification

LEVEL 3 SPECIALISTS

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LEVEL 1 SUPPORT

LEVEL 1 SUPPORT

LEVEL 2 SUPPORT

LEVEL 2 SUPPORT

LEVEL 3 SPECIALISTS
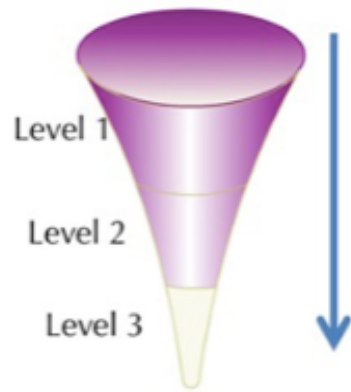
LEVEL 3 SPECIALISTS

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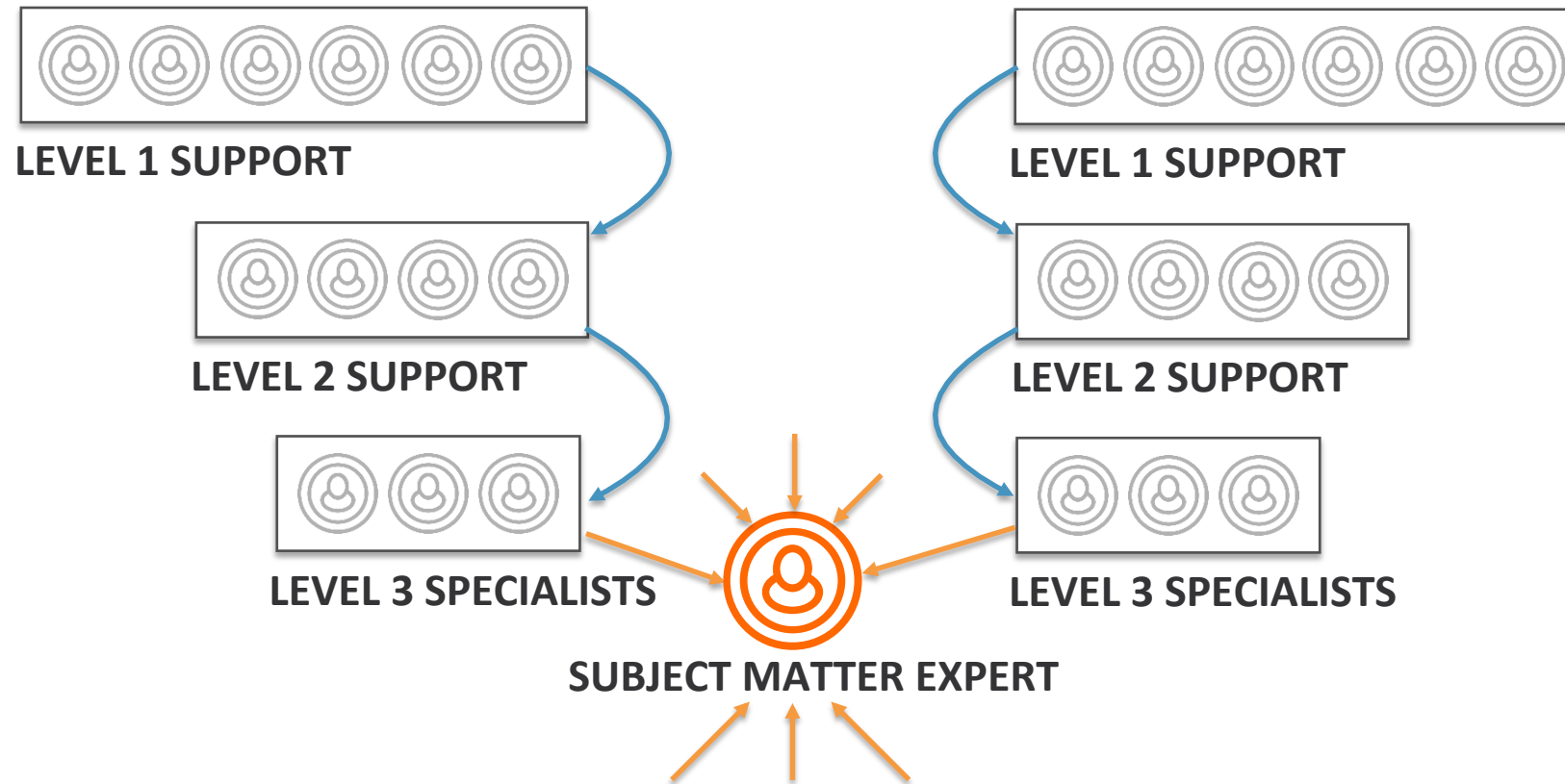
The system encourages "heroes" (not in a good way)

Swarming defined

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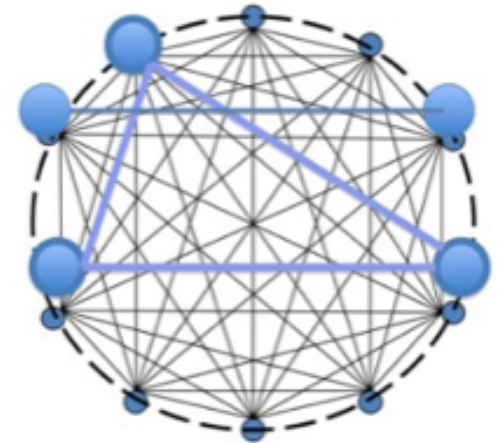

| Level 1 |
| Level 2 |
| Level 3 |

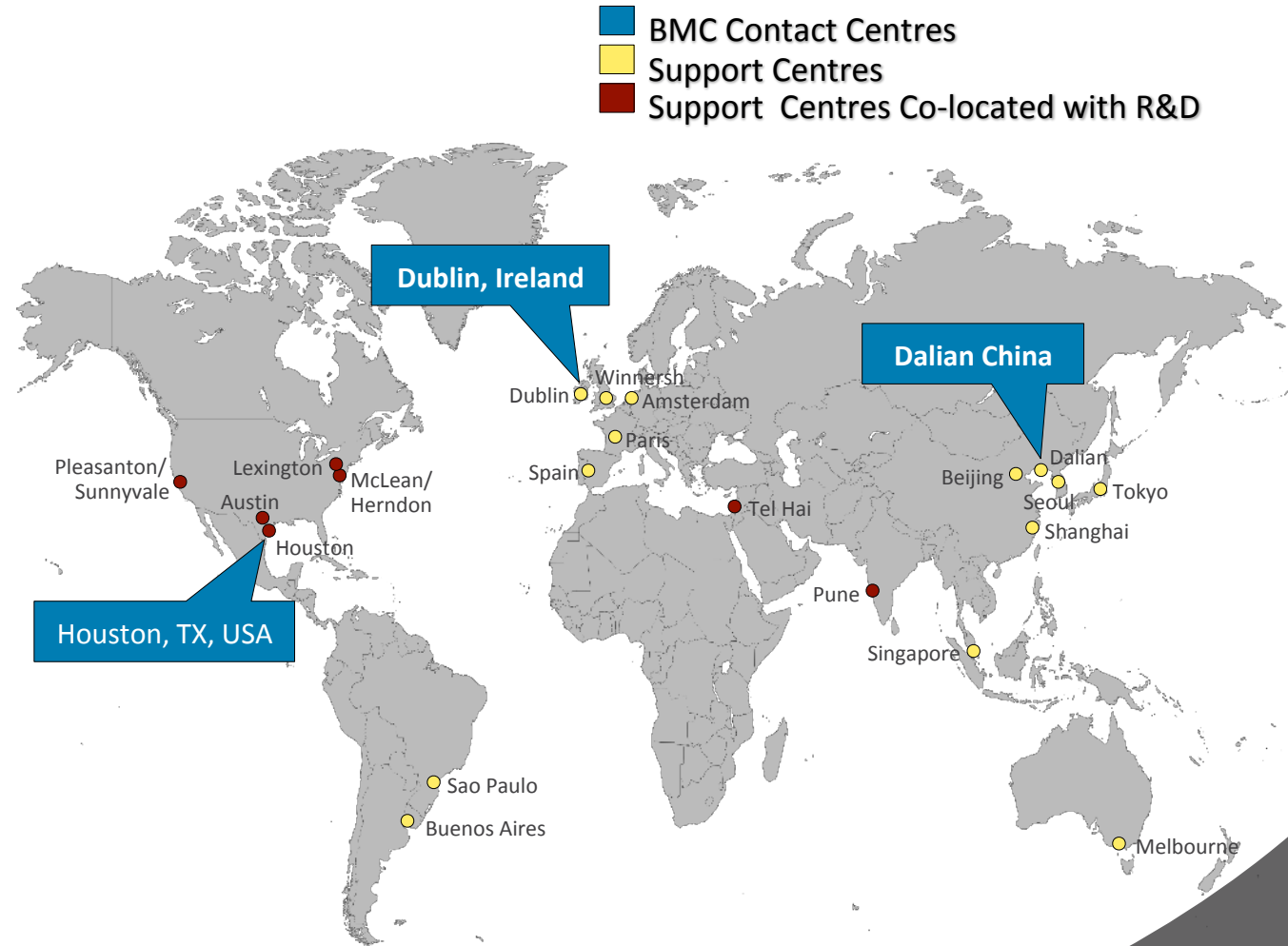| *Tiered support*	*Swarming*
Siloes and hierarchies	Network
Directed	Collaborative
Linear, rigid	Dynamic, loopy
Measured on activity	Measured by value creation

BMC Customer Support

- 24 hours, 365 days.
- 500 specialists, 3000 years of experience
- 200,000+ incidents addressed each year
- 10,000+ customers
- Remedy, Control-M, TrueSight, etc…
- Communication skills are a hiring focus

■ BMC Contact Centres
■ Support Centres
■ Support Centres Co-located with R&D

Dublin, Ireland

Dalian China

Houston, TX, USA

Pleasanton/ Sunnyvale
Lexington
Austin
McLean/ Herndon
Houston

Dublin
Winnersh
Amsterdam
Paris
Spain
Tel Hai

Beijing
Dalian
Seoul
Tokyo
Shanghai
Pune
Singapore

Sao Paulo
Buenos Aires

Melbourne

Swarming at BMC

Severity 1 Swarm   Dispatch Swarm   Backlog Swarm

Swarming Process at BMC

1%

Severity 1 Swarm

Prioritise

Severity 1 Swarm

- **Rapid responders**
  - Three agents, one week rotation
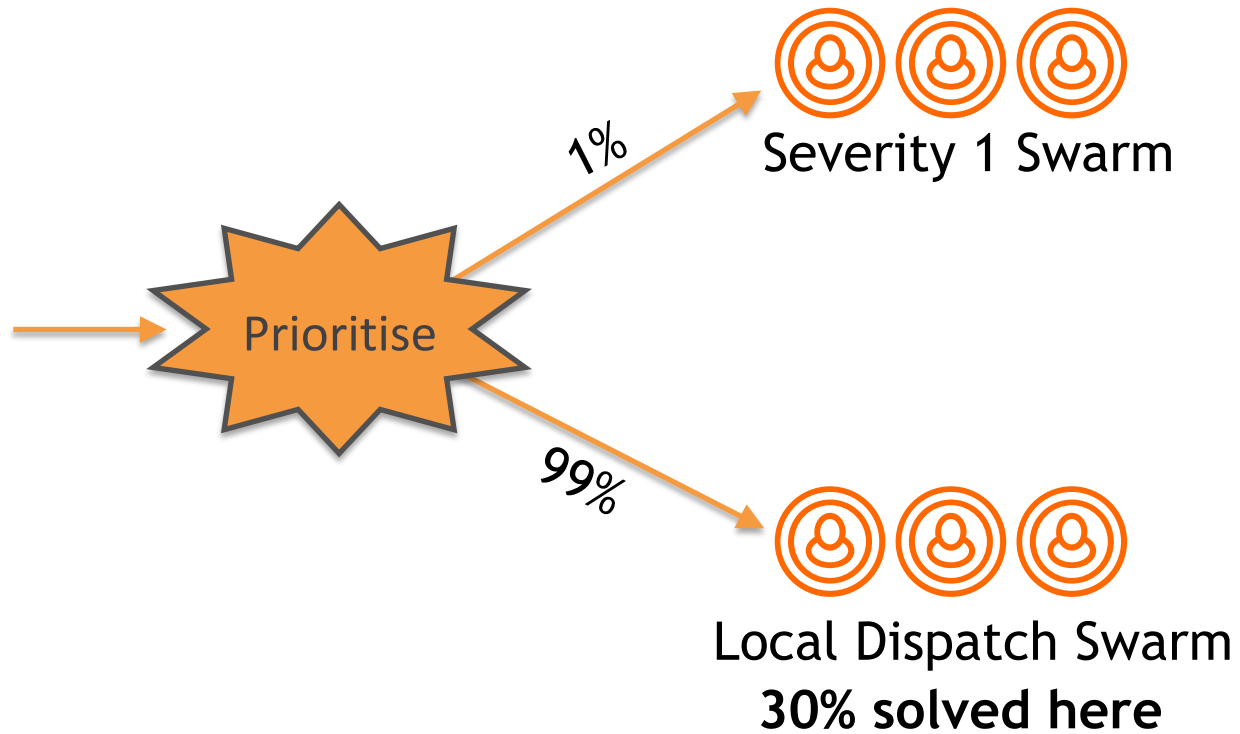 - Primary focus: Provide immediate response, resolve ASAP

Swarm lead
Communications

Other members
Research, coordinate, test

Swarming Process at BMC

1%
Severity 1 Swarm

Prioritise

99%
Local Dispatch Swarm
30% solved here

Dispatch Swarm

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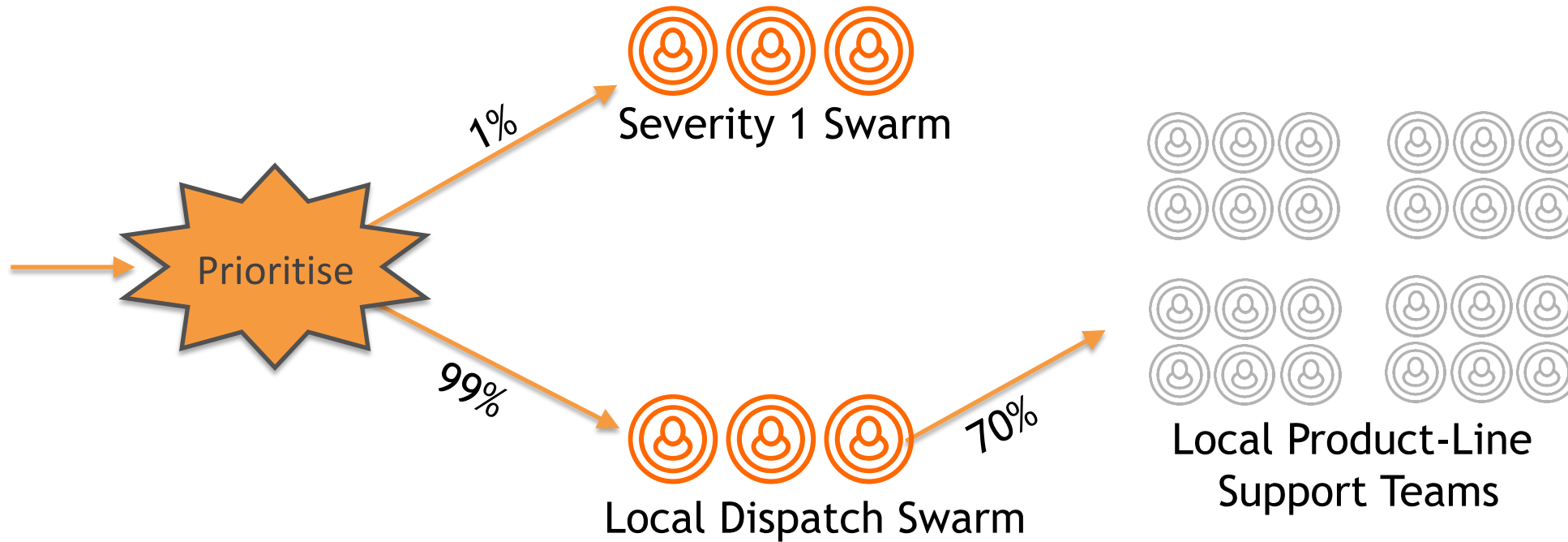 - Also: Validation of ticket details before assignment to specialists
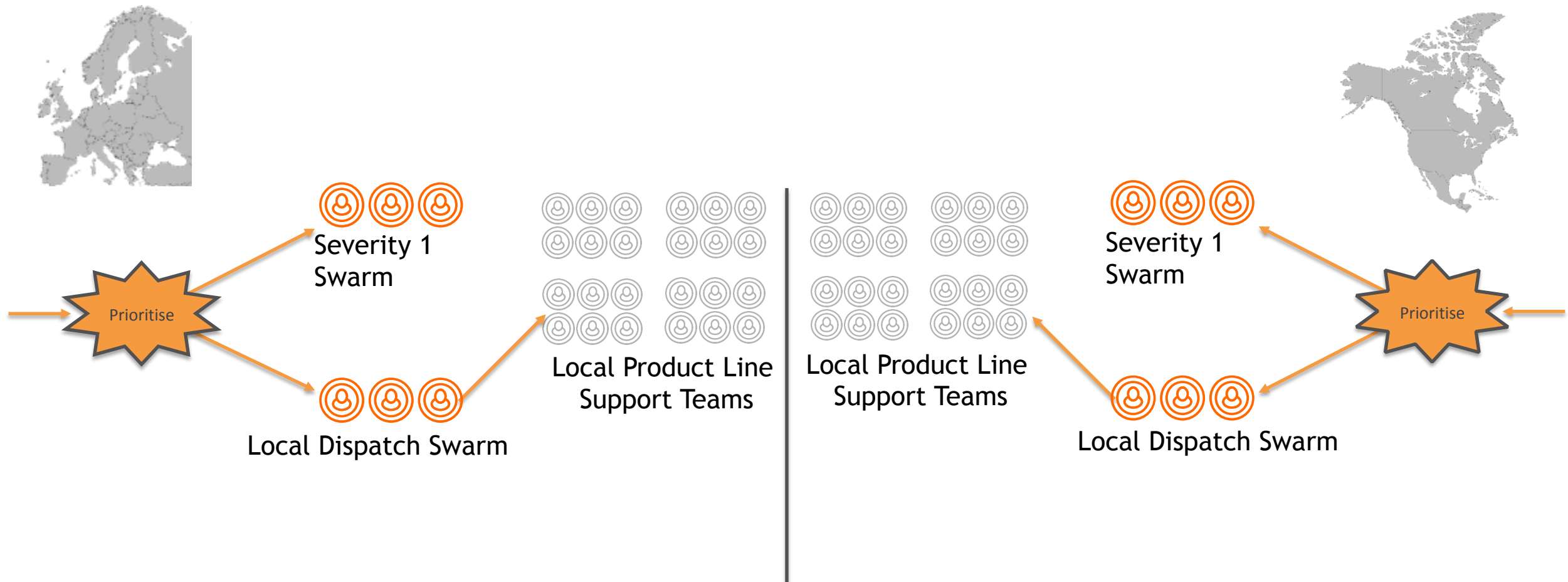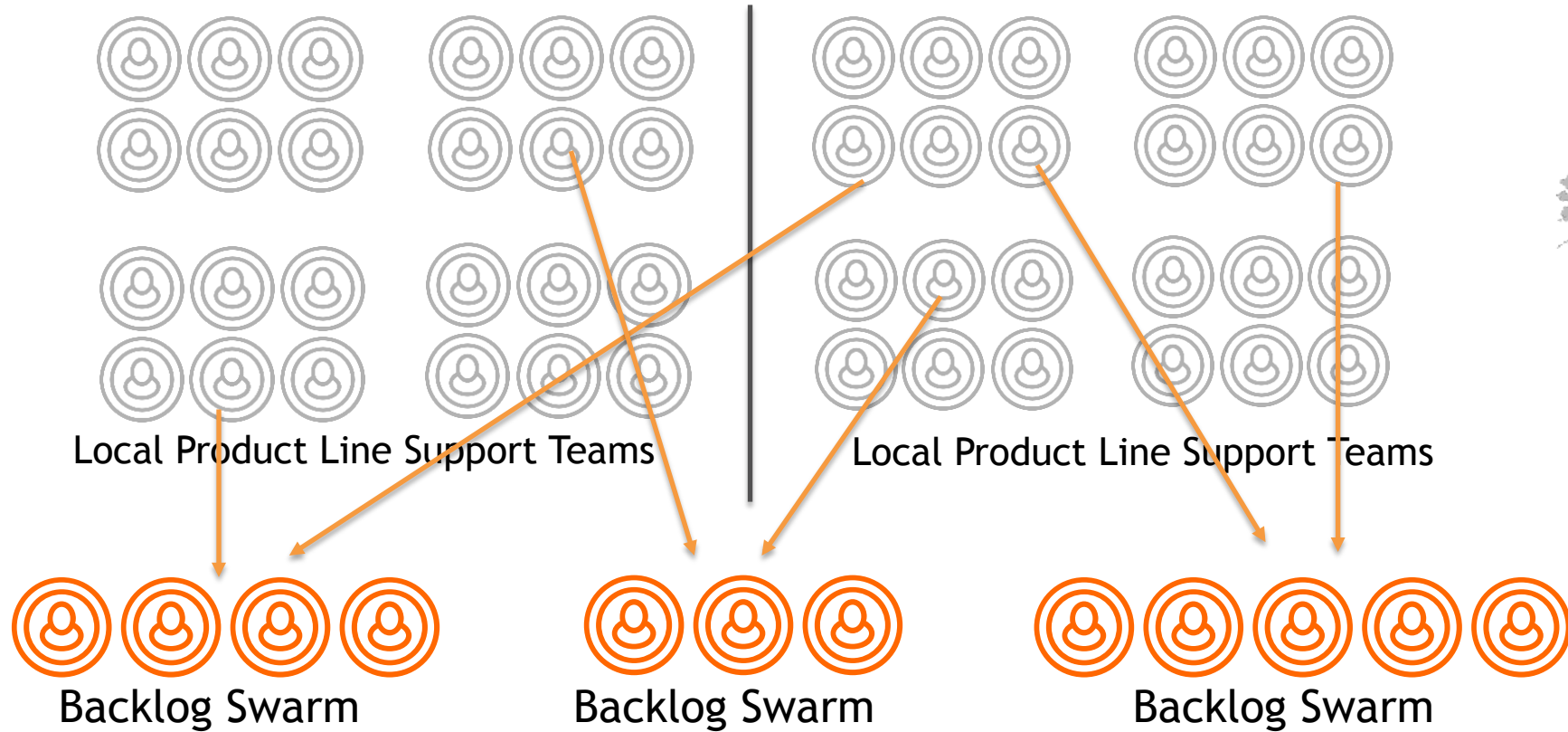
Experienced analyst

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

Swarming Process at BMC

Local Product Line Support Teams

Local Product Line Support Teams

Backlog Swarm

Backlog Swarm

Backlog Swarm

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Backlog Swarms

- **Global fixers of troublesome tickets**
  - Meet regularly (often multiple times daily)
  - Primary focus: Challenging tickets brought by local support teams
  - Replaces inter-team and individual reassignments

Experienced analysts　　　　**R&D Engineers**

Making it work at BMC Customer Support

- Guidelines, not rules
- Metrics had to change (Swarming breaks traditional ones!)
- Supported people who became newly customer facing
- Banned ticket tennis and direct escalations to experts
- New tooling practices, particularly mobile and chat

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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

"Swarming works better than conventional processes.

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

If there are no experiences, then it's *perspectives:* Decades of experience, providing guidance of how to troubleshoot"

- 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

Ford Connected Vehicles Division

Challenge: how to scale support from 275,000 cars, to 180+ million new vehicles *every year.*

- *"You've got to go where people are" – Chad Jolly, 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 may get bigger over time as necessary and might include engineers from Amazon, Microsoft, etc.

It's not all positive!
Problems reported by some Swarming adopters

- Costs may increase even as other metrics improve
- Difficult to evaluate individual contribution
- Organizing across time zones may be a challenge
- A few individuals sometimes dominate
- Finding the right people for a swarm is difficult

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 challenges ServiceDesk orthodoxies...

- New services and applications suddenly appear
- More home-grown software
- Developers work in different tools
- New kinds of customer, especially external

DevOps challenges ServiceDesk orthodoxies...
...but enterprise realities challenge DevOps

- Provision of support at industrial scale

- Adaptation to life "on call"

- Multi-cloud; Blend of old and new systems

- Customer/business context

- What to prioritize? Fix or build?

"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

Uh oh...

LEVEL 1 SUPPORT
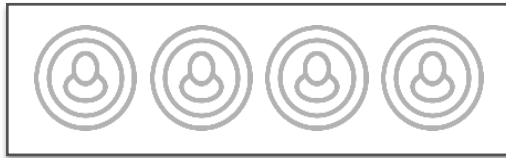
LEVEL 2 SUPPORT   LEVEL 2 SUPPORT   LEVEL 2 SUPPORT

LEVEL 3 SPECIALISTS   LEVEL 3 SPECIALISTS   LEVEL 3 SPECIALISTS   LEVEL 3 SPECIALISTS

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

Exploring further: Swarming to deliver Cynefin

- **Cynefin** (Pronounced *"kuh-nev-in"*)
- Developed by Dave Snowden at IBM in 1999
- Taken independent in 2005
- *"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
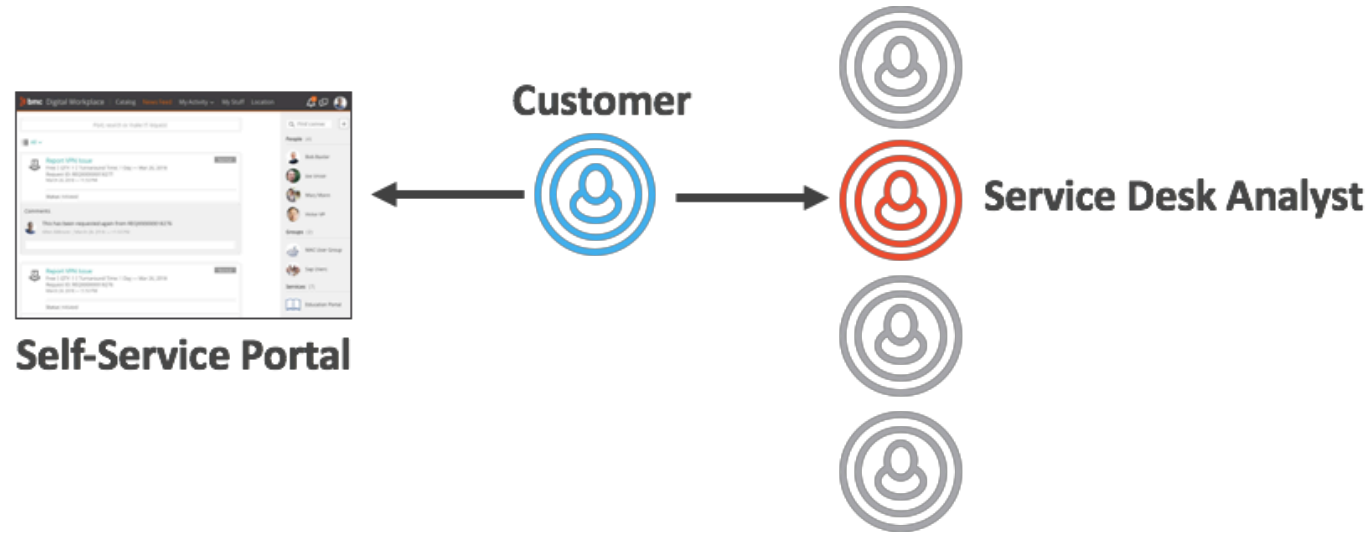
- *"Sense, Categorise, Respond"*
- Template/knowledge-driven resolution
- Self service

"Complicated" Domain

Swarm Lead

Swarm assistant

- *"Sense, Analyse, Respond"*
- Dispatch-type swarm – pair 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

Phase 1: Swarm Lead, Swarm assistant

Phase 2: Developer, Network specialist, Swarm Lead, Swarm assistant

Phase 3: Swarm assistant, Network specialist, Swarm Lead, Developer, Cloud Supplier Representative

Phase 4: Developer, Cloud Supplier Representative, Swarm Lead, Swarm assistant

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"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
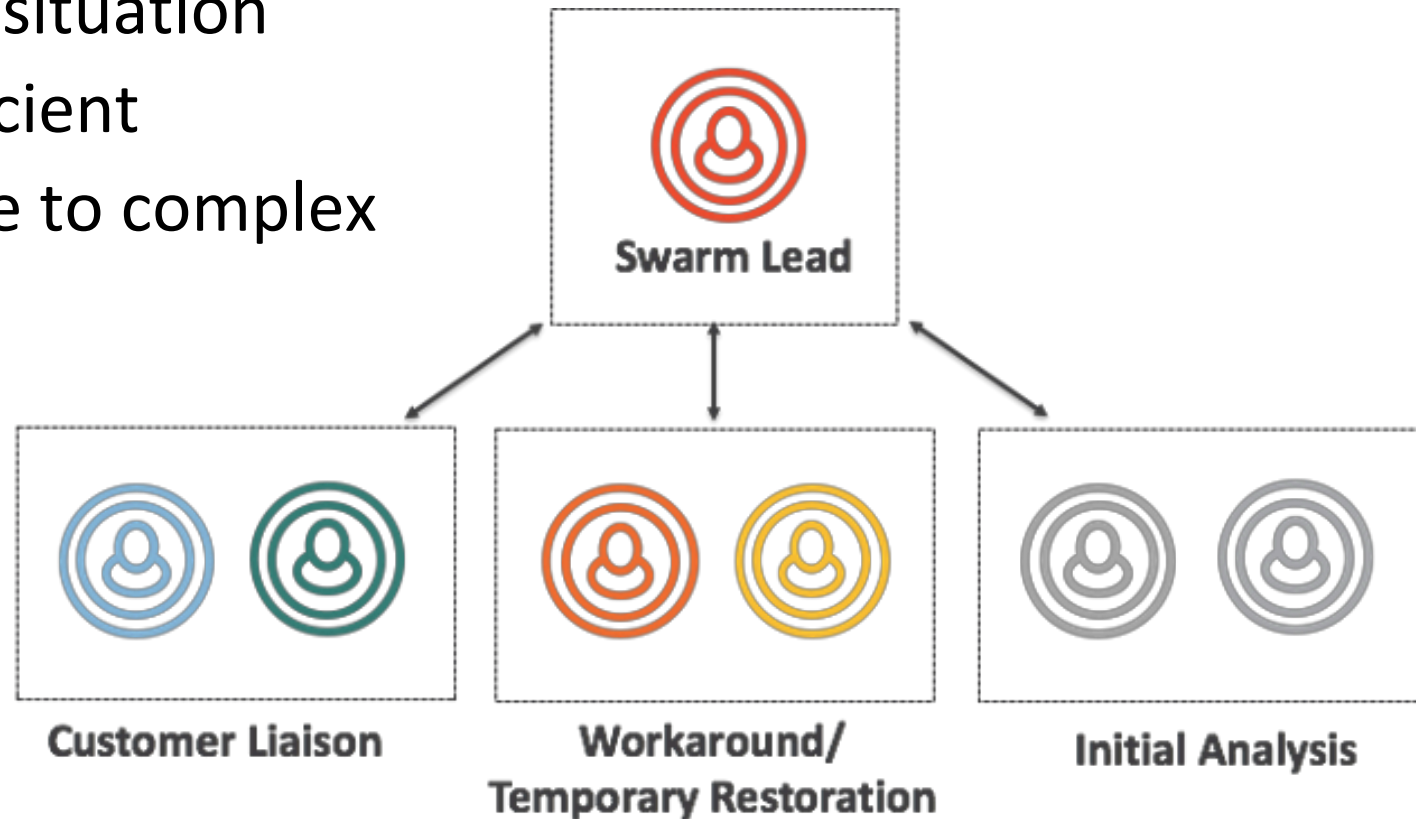
What next?

- Service Management needs to evolve its practices and tooling to better position its value to DevOps teams. We need your help to do this right.
- We'd like to listen to how support is affecting your role, as your impact grows in your enterprise.
- You are **agents of change** in enterprises, with a good opportunity to influence thinking.

Some more information

serviceinnovation.org/intelligent-swarming

medium.com/@jonhall_