RHEL Image Mode Cohort Interviews

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Contents

Background and context

What is RHEL image mode?

Image mode for RHEL is a new way for system administrators to deploy, build, and manage RHEL as a bootable container image. This new approach to RHEL management uses similar tooling to container maintenance, which sysadmins are already familiar with.

What is it?

Where we had questions:

How do we know that these are our users?

Do our users know what this is?

Image mode for RHEL is a new way for system administrators to deploy, build, and manage RHEL as a bootable container image. This new approach to RHEL management uses similar tooling to container maintenance, which sysadmins are already familiar with.

This is an assumption. How can we validate/invalidate this?

Research goal

We want to provide the image mode for RHEL team with a continuous stream of user insights throughout the product development and design process.

User problem statement

Users who build and manage systems need to minimize the time it takes to build, test, and deploy images.

The users

Target user profile

- System administrators or Platform Engineers
- Have some container knowledge or are container-curious
- Create, manage, or deploy images
- Responsible for building and managing systems
- Any industry
- Working for Medium to Very Large Growth or Development Phase organizations (or traditionally Medium to Large Enterprises)

Method

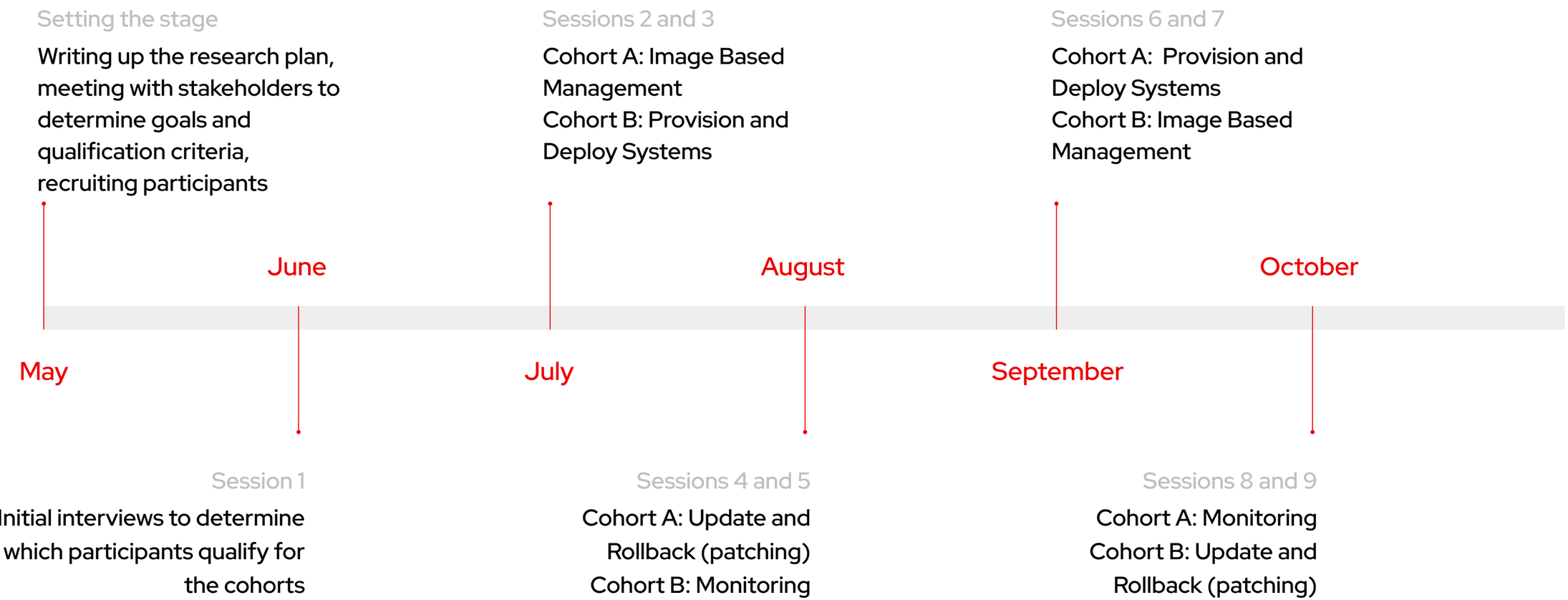
To answer our research questions, we chose to conduct

Cohort interviews

Why?

- An effective way to receive a continuous stream of feedback from participants
- A method where we can ensure participant involvement from the get-go
- A way for us to take a look at different kinds of participants (not just sysadmins) and how they plan to use this new technology (if applicable to their role at all!)

Project timeline



Study details: Session 1

Session 1 research questions

For our first round of interviews, we wanted to answer the following questions:

- What are some of their common tasks and responsibilities?
- Talk about the experience of building and managing systems.
- What teams and stakeholders are they interacting with as part of their job?
- What is their Automation experience? How is it viewed at their company?
- What is their CI/CD experience? How is it viewed at their company?
- What is their container experience?
- What is their image experience? Manage/create/deploy/?

Research goals and non-goals

We wanted to accomplish (this Session)

- Identify 10 qualified participants for a set of Cohorts (A&B)
- Further validate findings from previous interviews
- Gain an overview of different organizations' structures
  - Automation in place
  - CI/CD pipelines
  - Team interactions

We did NOT intend to accomplish

- Short, quick dives on any topics/designs/features
- Get detailed data on specific workflows

Method

To answer our research questions, we chose to conduct

18 one-on-one interviews

Recruitment process

- Distributed screener that determined a participant's eligibility for a first round interview (Session 1)
- Utilized User Interviews, LinkedIn, Reddit, and Summit booth scanners
- 18 initial participants interviewed thus far
- 8 official cohort members (meaning they qualify and have confirmed their participation for Session 2 and on)

How we determine qualifying participants

Participant	Industry	Manages/creates images OR Deploys?	Has container knowledge/works with containers?	Qualified to continue to Session 2 and on?
P1 - Solution Architect	IT	Deploys	Yes	No, org conflict with Red Hat
P2 - DevOps Developer	IT	Manages & Creates	Yes	Yes
P3 - Infrastructure Engineer	Government	Deploys	Some	No
P4 - DevSecOps	Manufacturing	No (different team handles this)	Yes	No
P5 - DevOps Engineer	Media Streaming	Creates	Yes	Yes
P6 - DevOps Specialist	Telco	Deploys	Yes	Yes
P7 - Infrastructure Engineer	FinTech	Deploys	Yes	Yes
P8 - DevOps Engineer	Healthcare	No (cloud management team)	Yes	No
P9 - Technical Lead	IT	Containerized images	Yes	Yes
P10 - Lead Systems Engineer	IT/Government	Creates & Manages	No, (different team handles this)	No
P11 - Linux Systems Engineer (Platform Engineer)	Finance	Deploys	Yes	Yes

How we determine qualifying participants

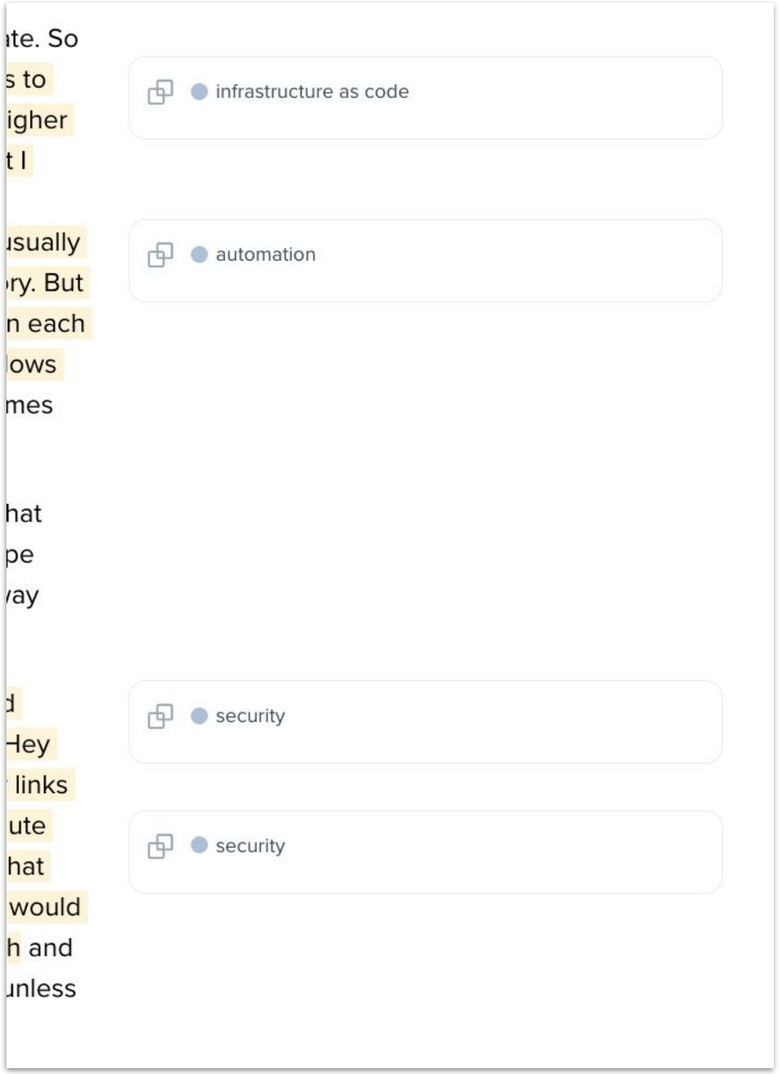
Participant	Industry	Manages/creates images OR Deploys?	Has container knowledge/works with containers?	Qualified to continue to Session 2 and on?
P12 - System Administrator	Automotive	No (infra team handles this); deploys?	Yes	No
P13 - Red Hat Practice Lead (Sys Admin)	IT	Manage, create, deploys	Yes	Yes
P14 - Manager of Unix Systems (Sys Admin)	Education	Yes	Yes	Yes
P15 - Network Engineer (Sys Admin)	Real Estate	Manages & Deploys	Yes	?
P16 - Cloud Architect (Platform Engineer)	Financial Services	Manages & creates, moving away from that responsibility	Dedicated container team	No
P17 - Infrastructure Engineer (Sys Admin)	Telco	Deploys	Yes	Yes
P18 - Technical Lead (Platform Engineer)	Automotive	Manages & creates	?	?

Findings: Session 1

Analysis process

To analyze our data, we tagged up major themes in the transcripts from each interview

- Generated a list of major themes from preliminary interviews, including:
  - Security
  - Automation
  - IaC
  - Images
  - Containers
  - Migration
  - Downtime

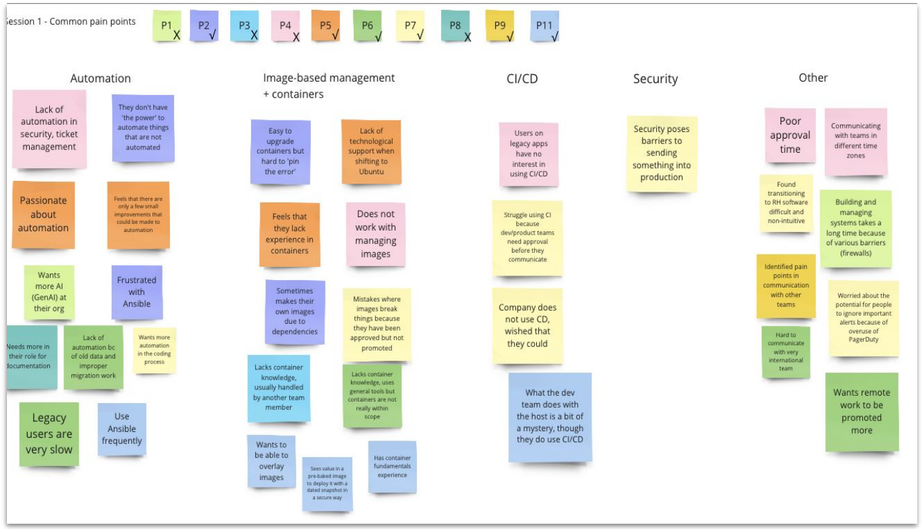


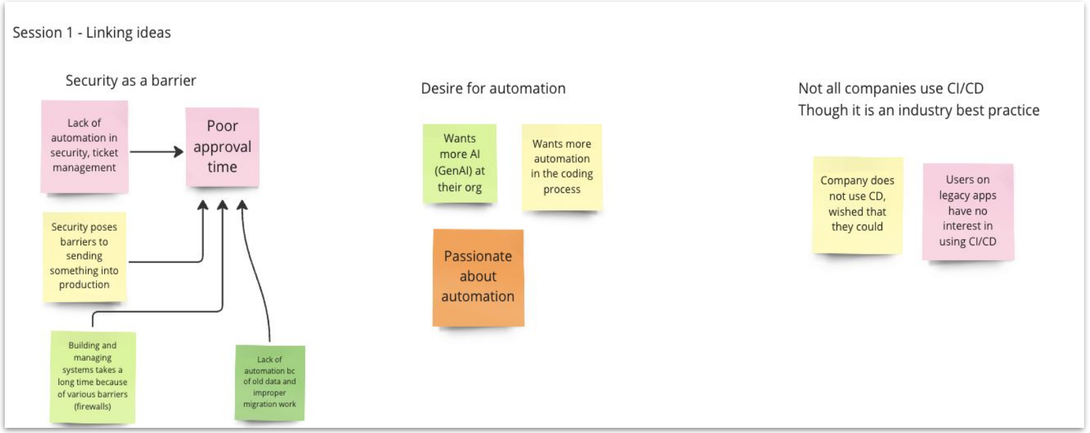
Analysis process

To synthesize our data, we used an online collaboration tool Miro to determine patterns in our findings

- Determine hierarchical pillars that are necessary for a participant to continue in the cohorts
  - Image-based management expertise
  - Container experience
  - Desire for/already existing automation

- Create affinity diagrams based on these pillars, drawing links between comments made in each interview





Session 1 Findings

Larger organizations have more specialized teams

Several sys admins and platform engineers we spoke to did not touch images - sometimes that responsibility is left to a different, specialized team.

Not all are using CI/CD

Despite it being an industry best practice, several companies do not use CI/CD because of legacy environments.

Validated assumptions from previous research

The bulk of what we have discovered has been previously found in our Sys Admin Interviews research efforts from February. We expect newer info to be discovered as we continue with sessions covering more specific topics.

Job roles are changing

Are “traditional” system administrators fading away with the increase of containerization?

[The company] created this Image Factory Team, it’s really their responsibility and since our, you know, like **they've done the cloud stuff and I did more of the on-prem stuff and since we're kind of getting away from the on-prem stuff** and making, we're just gonna make a direct cloud copy that the on-prem users can use, they should kind of handle that. And then for all **the security stuff that should go to the Security Team**. And so I don't have to deal with it. So trying to get rid of that, they don't really wanna listen, but I gotta try again sometime this week.

P16

Cloud Architect on shifting away from managing images

As far as the [dev] teams actually do with the [network] host once we hand it over to them, that **in many cases is a mystery**

P11

Linux Systems Engineer on visibility into developers' work

Study details: Sessions 2 and 3

Our participants

As part of our next step in our cohort interview process, we used AI to generate participant profiles for each of our interviewees.

The goal of this was to have a one-stop-shop to inform stakeholders of who we are talking to, as well as create a distinct place to record new participant info.

Our participants

Meet Our Participants*

P2 - Image Iguana

DevOps in IT

P5 - Media Mouse

DevOps in Media Streaming

P6 - Telco Tiger

DevOps in Telecommunications

P7 - FinTech Falcon

DevOps in FinTech

P9 - Systems Squirrel

Platform Engineer in IT

***Real, human participants were interviewed.** Anthropomorphized images are purely for reducing human bias and to visually differentiate participants..

Our participants

Meet Our Participants*

P11 - Finance Fox

Platform Engineer in Finance

P13 - IT Impala

System Administrator in IT

P14 - Education Elephant

System Administrator in Education

P15 - Real Estate Raccoon

System Administrator in Real Estate

P17 - Telco Toucan

Infrastructure Engineer in Telecommunications

*__Real, human participants were interviewed.__ Anthropomorphized images are purely for reducing human bias and to visually differentiate participants..

Study research questions

For Sessions 2 & 3, we wanted to answer the following questions:

- Their level of agreement with: *"Most system administrators have basic container knowledge and have built them in the past"*
- What is the process around maintaining images at their respective organization
- What automation is currently implemented in the containerization/image management workflow?
- What do their OS packages look like?
- What are their expectations for containerizing the OS?

Findings: Sessions 2 and 3

Session 2 Findings

Organizations without containers in place would struggle migrating to them

Several participants spoke on how their current sysadmins would struggle with container migration because of so much to learn

Image sprawl is a common hurdle

Most participants said that their organizations struggle with having too many images due to redundancies or lack of automation

Inconsistent approaches to image management across organizations and teams

Some organizations have a pre-determined system that involves image updates and maintenance, while others do not

Sys Admins are viewed as “outdated”

Are “traditional” system administrators fading away with the increase of containerization?

But now with containerization... CI/CD pipelines will [be] involved, containers will come, Kubernetes cluster will come. So they [sysadmins] have to ... learn new things, then they will be able to adopt that.

P9 - Systems Squirrel

Platform engineer on migrating to containers

Session 3 Findings

Low enthusiasm towards container migration

Most participants understand the benefits, but view them as “wasteful”

Too many cattle, not enough pets

Sys Admins feel pressure to keep up, but lack the time

The reality of a sysadmin is primarily to be reactive, not proactive. This prevents them from having the time to keep up with new technologies independently.

Generational differences create a gap in container knowledge

Adopting containers will be a bigger lift for “traditional” sysadmins. There needs to be a mentality shift and access to solid training.

Image maintenance is frustrating

Cohort B views automation as essential for maintaining images since their processes are a pain point. Each org has a different process.

So, like a lot of folks, again, probably more older folks like me, look at containerization as sort of an unnecessary extra layer of complexity.

P13 - IT Impala

System administrator on using containers at their org

The pivot

A roadblock

- **Red flag:** Since we found that we have already been receiving repeated feedback from our participants
- **Red flag:** We still have these participants for 3 more months– roughly 30 more interviews– and we are starting to question whether we our actually getting valuable feedback

So, we started ideating again...

- **Questions raised:** How can we maximize the value of the feedback that we get from our participants over the course of so many interviews? What do our stakeholders want to see? What kind of feedback or information is important but has not yet been received?
- **Plan:** meet with stakeholders, recruitment team, and research team to decide on the most feasible way to move forward given our timeline

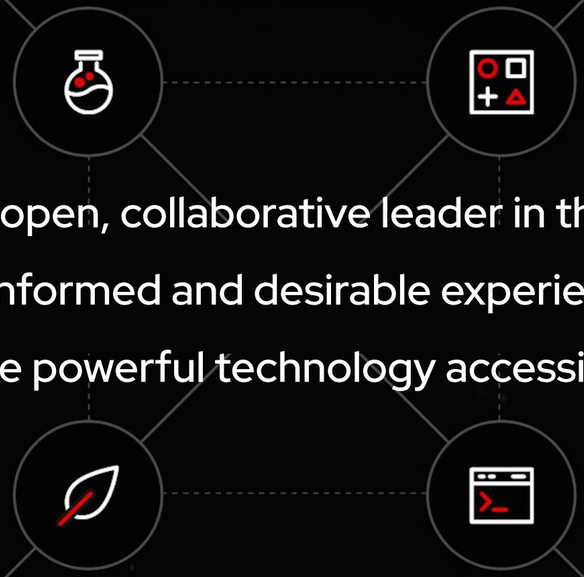
The solution

- After meetings with both stakeholders and our team, we decided that the best decision for moving forward would be to **pivot the themes for the rest of the interviews** so that they have a greater focus on how RHEL image mode can benefit them
- The rest of the interviews will be more usability-style, having the participants *interact* with the technology rather than gain more feedback on their workflows
- This new approach will provide more tangible, effective results for our stakeholders and will engage our participants more in our new technology

How will we avoid this in the future?

- We learned a lot from this process of cohort interviews, and we found that the weakest point in our preliminary research plan was our goal. Because our goal was non-specific and non-measurable (it was just to provide a continuous stream of feedback to stakeholders), we did not know where to start and when to ‘call it quits’
- In the future, we will take better practices in making a measurable, attainable goal that fits both the constraints of time and money presented by stakeholders and the specific pain points of our users

Thank you



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