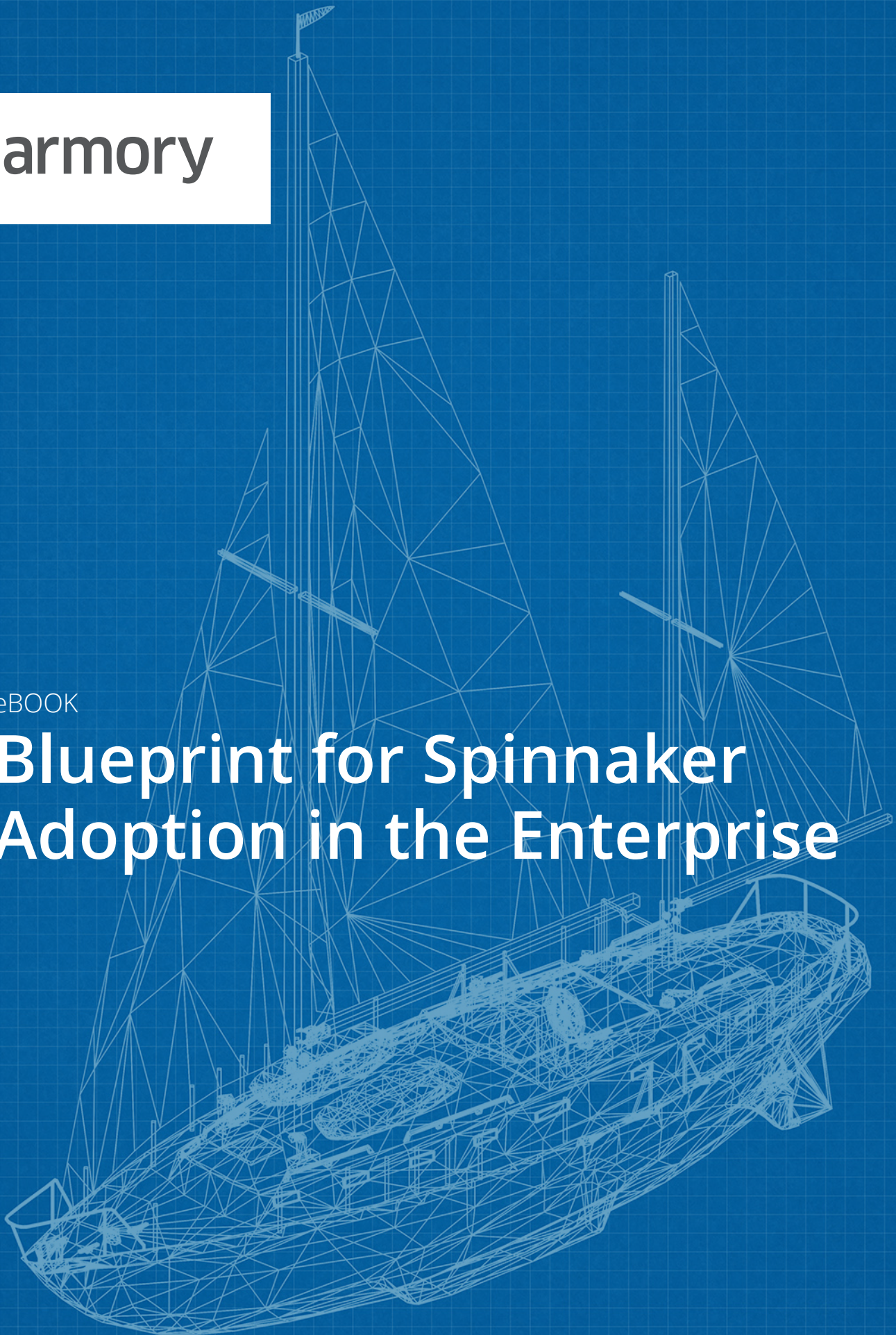armory

eBOOK

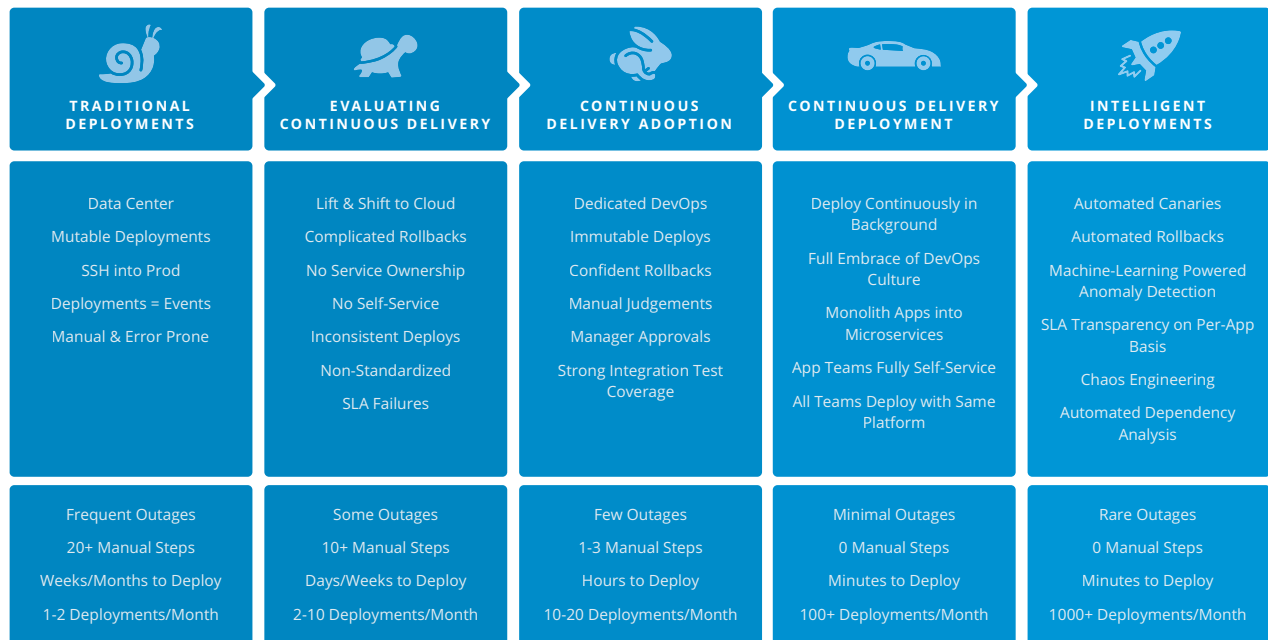# Blueprint for Spinnaker Adoption in the Enterprise

INTRODUCTION

Many organizations are moving towards a continuous integration/continuous delivery (CI/CD) model. The goal of CI/CD is to deliver software in as automated a way as possible, eliminating some of the complexities and bottlenecks associated with manual or batched delivery. You may be considering a migration in your own organization. Many companies who move to CI/CD choose to utilize Spinnaker, an open source, multi-cloud continuous delivery platform that helps you release software changes with high velocity and confidence.

The benefits of moving to CI/CD with Spinnaker include:

– Common, multi-cloud software delivery

– Fast customer feedback loops

– Increased transparency and visibility

– Early issue detection and fixes

– Increased productivity and job satisfaction

The move to CI/CD can be viewed within the context of the stages of Software Delivery Evolution; Armory developed this diagram to visualize the progress from Stage 1 (traditional deployments that are manual and error-prone), through the maturity model to complete CI/CD. Stage 5 is aspirational: it's a nirvana, or ideal state that few companies have actually achieved. Think of Netflix, where thousands of daily deployments are smooth and completely automated end-to-end, and are largely a non-event for engineering teams.

TRADITIONAL DEPLOYMENTS	EVALUATING CONTINUOUS DELIVERY	CONTINUOUS DELIVERY ADOPTION	CONTINUOUS DELIVERY DEPLOYMENT	INTELLIGENT DEPLOYMENTS
Data Center	Lift & Shift to Cloud	Dedicated DevOps	Deploy Continuously in Background	Automated Canaries
Mutable Deployments	Complicated Rollbacks	Immutable Deploys	Full Embrace of DevOps Culture	Automated Rollbacks
SSH into Prod	No Service Ownership	Confident Rollbacks	Monolith Apps into Microservices	Machine-Learning Powered Anomaly Detection
Deployments = Events	No Self-Service	Manual Judgements	App Teams Fully Self-Service	SLA Transparency on Per-App Basis
Manual & Error Prone	Inconsistent Deploys	Manager Approvals	All Teams Deploy with Same Platform	Chaos Engineering
	Non-Standardized	Strong Integration Test Coverage		Automated Dependency Analysis
	SLA Failures			
Frequent Outages	Some Outages	Few Outages	Minimal Outages	Rare Outages
20+ Manual Steps	10+ Manual Steps	1-3 Manual Steps	0 Manual Steps	0 Manual Steps
Weeks/Months to Deploy	Days/Weeks to Deploy	Hours to Deploy	Minutes to Deploy	Minutes to Deploy
1-2 Deployments/Month	2-10 Deployments/Month	10-20 Deployments/Month	100+ Deployments/Month	1000+ Deployments/Month

Armory has put together a simple, high-level overview of what to consider and the steps you'll need to take, so you can join the thousands of other forward-looking companies moving some or all software delivery to CI/CD with Spinnaker. We'll show you how to approach Spinnaker adoption using this straightforward blueprint. And, we'll finish with a clear success story that shows how methodically integrating Spinnaker can have a measurable impact on the efficiency of your devops team.

BLUEPRINT STEPS

1 Get Alignment on the Current State of Software Delivery

2 Identify Champions & Detractors

3 Develop a Shared Vision

4 Get Alignment for the Shared Vision

5 Develop Capabilities & Your Migration Roadmap

6 Implement Your Roadmap: Rollout!

7 Track Your Progress & Refine

1 GET ALIGNMENT ON THE CURRENT STATE OF SOFTWARE DELIVERY

You may intuitively know why you want to migrate to CI/CD. But in order to get buy-in across the organization, to most effectively build your roadmap, and to prioritize which services to onboard first, you need to be able to empirically articulate the pain points and realities of your current software delivery & deployment.

Which problems are the most urgent to solve? Where will Spinnaker add the most – and the most immediate – value? Identifying this will also help you with Step 2 of the blueprint: you will be able to identify your biggest champions. These champions will become your biggest advocates and help drive adoption.

Armory recommends surveying stakeholders across the organization to get a clear understanding of the current state of service deployment. It's important to survey engineers and managers from all relevant teams and to interview them after receiving their responses, in order to understand their needs in more detail. Rank and summarize the results and share them back out with those stakeholders for validation. This is a critical step; it is the scaffolding for the rest of the executive alignment and migration process, so spend the time and care required here.

Example Survey Questions:

What services do you work on?	*How often does one of your services experience an outage?*
How is your team deploying today?	*How long does it typically take to resolve an outage?*
How often do you deploy to production per month?	*How urgent is it to resolve the current pain points related to deployments?*
What are the manual steps involved in your deployment?	*Are you interested in participating in an internal POC of a delivery pipeline?*
What are the biggest pain points with deployments?	*Any additional thoughts about deployments you'd like to share?*

Armory sees common customer survey responses on pain points, such as:

– Unsupported/non-standard deployment tooling causes inefficiencies

– New service deployment is difficult, time-consuming, and inefficient

– Deployments are manual, and therefore failure-prone

– Too much duplication of infrastructure code when creating and managing services causes inefficiencies

Identifying both the top set of challenges and the stakeholders who face these most urgent challenges will enable you to coalesce the migration (and the critical next steps) around them. It will also maximize the pace and success of the Spinnaker adoption.

KEY TAKEAWAY: Identifying the most urgent pain points early on will enable you to prioritize the migration of the services that will show the most immediate value to the organization. You will also be setting the baseline to measure your success during and after the migration: how much faster and more efficiently are you deploying with Spinnaker?

2 IDENTIFY CHAMPIONS & DETRACTORS

CI/CD is a people and cultural shift as much as a technology shift. It's critical to carefully choose the individuals who will participate in your POC, Alpha, and Beta phases. Your initial successes and success metrics will help win over the rest of your organization, and help drive support and adoption of the migration.

Taking the survey results from Step 1, it's now time for a critical assessment:

- Which services identified in Step 1 have the most pain points, are the most important, and have the most visibility, with multiple deployments?
- Which individuals in your organization own the pain points identified in Step 1?
- Which of those individuals also have the time and bandwidth to work with the migration team?
- Which individuals have influence, both within their own teams, and across the organization?
- Which services will make the most sense to migrate in POC, Alpha, Beta, and GA?
- Which individuals own or influence some or all of those services?

In this step, it's critical to be as realistic about the human landscape as you are about the technical landscape. Your "people roadmap" will be as important – if not more important – than your migration roadmap.

> **KEY TAKEAWAY:** Identifying key influencers who will benefit early in the migration and who will become advocates during onboarding will make your Spinnaker adoption faster and smoother.

3 DEVELOP A SHARED VISION

This stage is where you collectively define "success," and coalesce your stakeholders around what you identified in Step 1: Why are you doing the migration, and what are your desired outcomes?

We recommend referencing the 'Stages of Software Delivery' diagram on page 1 to anchor those desired business outcomes around the CI/CD evolution in your organization.

Developing this shared vision shouldn't be daunting. You can successfully implement Spinnaker and still iterate towards Stage 5. Remember: You don't have to achieve perfection to achieve noteworthy, empirical results with CI/CD!

The most important part of this step is to ensure that all your stakeholders agree that this is the direction you want to head, and that the current state of affairs identified in Step 1 is the baseline you are working from. Determine collectively where you want to be, and by when. This will enable you to establish a road-map and get buy-in from key stakeholders to roll out the roadmap.

> **KEY TAKEAWAY:** Identify where you are starting from, and your vision of where Spinnaker adoption should take your organization. A clear, shared vision will make your adoption goals, metrics, and roadmap easier to define and roll out.

4 GET ALIGNMENT FOR THE SHARED VISION

This is the stage for securing buy-in from your key stakeholders... and there are a lot of them. It's important to see this stage as a collaborative and iterative opportunity. Your key stakeholders come from the various parts of the organization that contribute to software delivery: the executive, engineering, product management, and finance teams. Those stakeholders will also need to align on how to execute on the shared vision by achieving operational alignment.

This is the step of the roadmap where high-level communication skills come in handy. In Step 1, you identified the core reasons the organization should move to Spinnaker, and why CI/CD is beneficial. It's now a matter of speaking the language of each set of stakeholders so they see how the migration will benefit them. This will help secure their support and participation.

GET ALIGNMENT FOR THE SHARED VISION: EXECUTIVE ALIGNMENT
A useful way to secure executive alignment is to align the shared vision of the end state with key business objectives. Generally, businesses want to ship software faster, and innovate faster to achieve and maintain increased competitiveness in the marketplace. Tie those less tangible objectives with the specific objectives that Spinnaker can help achieve. For example, correlate feature velocity and engineering efficiency with the impact on general organizational nimbleness and competitiveness.

Many companies have initiatives tied to achieving compliance with certain certifications, like FEDRAMP, SOC II, HIPAA, or GDPR. Migrating to Spinnaker enables engineering efficiency and accuracy with a stringent approach to continuous upgrades and automated patching. Reminding the executive team that compliance certification objectives can be met without reducing engineering efficiency ties business and engineering objectives together, and helps to secure executive alignment.

GET ALIGNMENT FOR THE SHARED VISION: PRODUCT MANAGEMENT ALIGNMENT
In many organizations, product management exerts a great deal of control over engineering team resources and priorities. Getting buy-in and alignment early on from product management is critical to reducing friction and driving a rapid and successful adoption. Educate product management on what you've surfaced in Step 1. Clear communication and value propositions are key. For example:

– Show product management the current deployment process, from Jira story to getting the end product into customers' hands

– Educate product management on time-to-deploy (TTD) and where you think it can be reduced by Spinnaker

– Where can Spinnaker eliminate hidden bottlenecks?

– How can Spinnaker improve feature velocity?

– How many story points are typically spent in each sprint, and how can Spinnaker reduce that?

If your company is willing to assign a product management liaison for the duration of the migration, it can be very helpful in securing alignment. However this is not a requirement for a successful migration.

Educating product management on why you are undertaking the migration and the problems you are solving is important in identifying who will become your champions within the PM organization.

GET ALIGNMENT FOR THE SHARED VISION: ENGINEERING ALIGNMENT

Companies that have successfully embraced CI/CD have been successful at both the technological and cultural shifts required. They have secured engineering support in embracing end-to-end service ownership, or have reframed devops as platform engineering. Armory also recommends positioning Spinnaker as an internal product rather than 'just another initiative.' For central technologies to be successfully adopted by developers, they have to be both perceived – and treated – as real products. This encourages all stakeholders to follow product development cycles and treat developers as customers, understanding their requirements, use cases and pain points (like you did in Step 1). It also encourages the organization to roll out the migration in sprints and iterations (Steps 5 and 6), with noticeably more success.

GET ALIGNMENT FOR THE SHARED VISION: FINANCE ALIGNMENT

We suggest you understand the procurement process as early as possible. This way, as Spinnaker adoption accelerates, you are prepared with procurement requirements and vendor MSA's. Getting buy-in from finance early in the process will ensure there are no speed bumps down the road!

GET ALIGNMENT FOR THE SHARED VISION: OPERATIONAL ALIGNMENT

After you've secured buy-in from your stakeholders, you'll need to decide and agree upon your execution approach. It's time to decide on the best practices for your rollout and to come together to define your success metrics. The clearer you are on your definition of success, the more successful adoption will be. If you can prove it's working, people will be more willing to onboard with you.

Some examples of success metrics:

– Velocity (time to deploy)

– Throughput (# of deploys)

– Quality (# of incidents/defects)

It's important to baseline these metrics before, during, and after each phase of the rollout.

> **KEY TAKEAWAY:** Getting alignment from stakeholders is key to the success of your migration. Everyone will buy in to the pain points Spinnaker is addressing and will be your champions as you roll out the migration. Taking the time to get people on board and invested in the outcome will benefit all phases of the migration.

5 DEVELOP CAPABILITIES & YOUR MIGRATION ROADMAP

Congratulations! You've done the cultural heavy lifting in securing alignment across the organization. Now, it's time to do what comes naturally to a devops or platform engineering team: execute and deliver! Think of this stage like developing a release or feature roadmap. Once you have this mapped out, you'll want to publish, share, and communicate. Try to commit to a timeline in order to build trust and transparency around it.

*You don't need your roadmap to be airtight before rolling it out. The goal shouldn't be to get a 100% perfect product into your stakeholder's hands. Instead, try to get **something** into their hands, quickly. Focus on iterating, and making changes and optimizations based on real user feedback. Your engineers use tools every day, all day. Get Spinnaker into their hands as soon as possible – with the help of this blueprint – and get feedback. You'll learn how to improve it in each phase of the rollout. If you try to make it "perfect" before rolling it out, you'll never roll it out to anyone!*

ARMORY'S SUGGESTED MIGRATION ROADMAP

Stage 1: POC [1 Service]

Stage 2: Alpha [2 Services]

Stage 3: Beta [30% of Services]

Stage 4: General Availability (GA) [~80% of Services]

Stage 5: Full Onboarding

TIPS & QUESTIONS TO CONSIDER FOR EACH STAGE OF THE ROADMAP

POC:
– Which service has the most urgent pain point(s)?
– Which service will demonstrate rapid value and results when you share it with the broader organization?
– Which team has the bandwidth to work on a migration of its service(s)?
– Which team is most respected, or has members you identified in Step 2 as possible champions?

Alpha:
– Which are the top delivery pipelines / pain points that iterate onto what you've chosen for the POC?
– Which services are relatively straightforward to map onto what you've accomplished in the POC?
– Which services and teams can you onboard that will help keep up the momentum of the POC, both from a pipeline and a knowledge proliferation perspective?

Beta:
– Which applications are representative of the GA population? (This will accelerate the full rollout)

KEY TAKEAWAY: Identify and roll out services in the early stages that will show value back to the organization. Choose team members that will become advocates and subject matter experts to help onboard other teams and services in later phases. You can – and will – iterate on the rollout plan, so it's more important to get it rolling, than to get it perfect.

6 IMPLEMENT YOUR ROADMAP: ROLLOUT!

Now that you've created a plan and timeline of which services to migrate in which phase, it's time to begin! After you've shown value with your POC and Alpha phases, the next step is to create and share a migration (or adoption) toolset, to help with a smooth, rapid, and predictable adoption.

Armory suggests creating a rollout toolset, including:

– Sign up schedules

– Templates for onboarding (e.g. Jira templates with onboarding subtasks)

– Onboarding documentation

– Best practices pipelines with example code

– Application import

– One-click bootstrapping

KEY TAKEAWAY: Armory can help with the rollout toolset; you don't need to recreate the wheel. Best practices and tools can also be reused and improved upon with each phase of your rollout.

7 TRACK YOUR PROGRESS & REFINE

TRACK YOUR PROGRESS

At each step of your rollout, it is important to track the metrics you developed in Step 4 and make sure progress is communicated to all stakeholders. The whole organization should be aware of your success to keep support levels high, and to keep adoption rolling along.

Spinnaker migration isn't a customer-facing project, so it is easy for it to get backlogged. You want to ensure that it is tracked the same way a new product or feature release would be. You need to ensure that you are continuously tracking and publishing your results.

DON'T JUST TRACK … REPORT!

Maintain high visibility. Hold demos, open sprints to the engineering organization, send out emails, join executive reviews, or publish dashboards. The more transparency you maintain, the higher your adoption rates and the lower the friction will be. If you followed the advice earlier in this blueprint, you should have taken baseline metrics before you began. You should have a sense of TTD, average number of deployments, number of defects, etc. Communicate the improvements you are seeing against this baseline in each phase of your rollout. Customers that migrate to CI/CD with Spinnaker see compelling results. The more you track and report these results, the more your stakeholders will support the migration.

AND FINALLY, REFINE!

Remember, it's beneficial to treat Spinnaker as an internal product. None of your products are (or should be), "set and forget". Continuously poll internal customers on satisfaction levels and feature requests. Customers work closely with Armory to add features to our roadmap. We encourage customers to participate in and work with the Spinnaker community. This iterative process will ensure that the Spinnaker environment you end up with in GA more closely matches your needs than the one you first envisioned when you began with Step 1 of this blueprint. Your stakeholders will feel that their input was solicited, listened to, and taken into account. And you should see real, tangible results from your migration to and embrace of CI/CD.

> **KEY TAKEAWAY:** CI/CD is a journey. The more you track metrics, communicate with, and get feedback from your customers, the further you'll progress.

APPENDIX: FOLLOWING ARMORY'S BLUEPRINT LEADS TO CUSTOMER SUCCESS

Armory has worked closely with customers in migrating organizations to Spinnaker using this blueprint, to great success. One customer closely followed this recommended blueprint, with noted success metrics. The customer needed to deliver features and services faster than its existing deployment tooling allowed, and knew that migrating to Spinnaker would enable faster delivery with greater engineering efficiencies.

STEP 1 GET ALIGNMENT ON THE CURRENT STATE OF SOFTWARE DELIVERY

– The company surveyed stakeholders, ranked the survey results, and interviewed engineers to validate survey results and confirm the survey rankings

– It found that nearly 90% of the top identified pain points could be addressed by the Spinnaker migration

Pain Points	# Rank	Spinnaker
Unsupported non-cloud native deployment tooling	1	Yes
New service deployment is difficult	2	Yes
Duplication of infrastructure code	3	Yes
Deployments are manual and failure prone	4	Yes
Access permissions and limits	5	Yes
CI instability	6	
Secrets Management	7	Yes
PR Preview environments	8	Yes

STEP 2 IDENTIFY CHAMPIONS & DETRACTORS

– The company took a 50,000 foot view of its engineering organization: it identified teams and services from the survey with the most urgent pain points, and implemented a scoring system of the "most influential" engineers within the organization who could help drive the adoption

STEP 3 DEVELOP A SHARED VISION

– The company's most important goal was securing FEDRAMP certification. Spinnaker could help achieve this by automating continuous upgrades and ensuring stringent patching, without compromising engineering efficiency

– Aligning the corporate, business, and engineering goals helped coalesce the entire organization around the migration

STEP 4 GET ALIGNMENT FOR THE SHARED VISION

– The Spinnaker migration team secured the endorsement of the Chief Development Officer. This ensured top-down support that permeated throughout the executive and engineering groups

– The company defined its services delivery platform (SDP) as an internal product and identified Spinnaker as a key part of that platform; re-envisioned its devops team as a platform engineering team; and supported the vision of end-to-end service ownership

– It defined success metrics for the migration and baselined the "before Spinnaker" metrics so there would be an easy way to benchmark success

STEP 5 DEVELOP CAPABILITIES & THE MIGRATION ROADMAP

– The company took a "land-and-expand" approach: POC and Alpha phases were deployed with a small team of evangelists with services that would have noticeable results, then expanded to other services in beta. In the initial phases, 4 services/sprint were supported for migration. The company assigned a product manager for each new team it onboarded, which accelerated the adoption and smoothed out the learning curve

STEP 6 IMPLEMENT YOUR ROADMAP: ROLLOUT!

– The company worked with Armory to implement the recommended adoption toolset

  • Sprint-by-sprint onboarding

  • Encouraged engineers to add their own documentation as they onboarded, to share in the next phases

  • Used pipelines as code, so engineers had a set of pipelines to pick from and modify

STEP 7 TRACK YOUR PROGRESS & REFINE

– The company embraced transparency, conducting open sprint demos, and publishing internal case studies during each phase of the roadmap

– It published an executive dashboard and graphics showing the success metrics and results at every step of the migration

– The company also actively participated in the Spinnaker community, both learning from and contributing back to the community (e.g. building an ECS driver which it sent back to OS)

THE RESULTS

– Measurable success metrics

Metric	Explanation	Before Spinnaker (avg)	After Spinnaker (avg)
Number of steps to deploy service into production	The number of manual steps, including manual validation, in all staging environments throuhgh production. (Each manual step introduces the potential for human error, which was responsible formany deployment failures and service outages)	25 steps	1 step
Engineering TTD	The amount of time for an engineer to deploy from staging through to production	60 minutes	<1 minute
Automation TTD	The average amount of time it takes to deploy regardless of engineer or service	60 minutes	31 minutes
Onboarding time	The time it takes for new engineers to be comfortable deploying code to production	3+ days	30 minutes
Engineering time to patch	Time to patch	5 days	0 (automated patching)

– Noticeably impressed executive team: "*Engineering's velocity for developing and delivering new services and features is off the charts*" (CEO)

– Record-setting productivity and feature velocity

– Increased cost efficiency, developer productivity, and security of services

– Close partnership with Armory

Armory Delivers Spinnaker at Enterprise Scale

Armory has deep expertise in operating and extending Spinnaker services; provides training and support; and guarantees uptime SLAs. It ensures scalability, high availability configuration, and flexibility with 3rd-party custom integrations. With Armory, developers get actionable insights with deep analytics to enhance developer productivity. Spinnaker with Armory is secure and compliant, with end-to-end auditability.
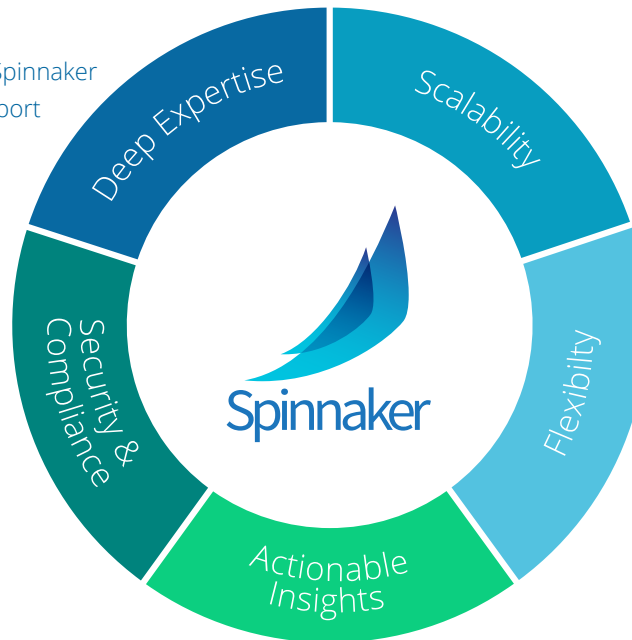
DEEP EXPERTISE
- Operating and Extending Spinnaker
- Services, Training and Support
- Guaranteed Uptime SLA

SCALABILITY
- Manage Spinnaker Pipelines via Source Code
- 1-Click Service Bootstrap
- High-Availability Configuration

SECURITY & COMPLIANCE
- End-to-End Auditability
- Air-Gapped Environments
- SLA Management
- FedRAMP & ISO

FLEXIBILITY
- 3rd Party & Custom Integrations

ACTIONABLE INSIGHTS
- Development Analytics
- Developer Productivity

SCHEDULE A PROOF OF CONCEPT TODAY

ABOUT ARMORY

Armory unlocks innovation by accelerating software delivery with a focus on safety, compliance, and standardization across your application teams. Armory's platform is used in production by hundreds of enterprises. Armory is backed by Crosslink Capital, Bain Capital Ventures, Y Combinator, and others. Armory is headquartered in San Mateo, CA.