**Appendix A. Library of Patterns (Thumbnail Reference Versions)**

New cloud native patterns are emerging constantly. To continue sharing them and extending the cloud native pattern language we have established here, please visit [www.CNpatterns.org](http://www.cnpatterns.org/).

This is where to find the latest pattern developments, but also an online community for discussing and creating new patterns. We are inviting people from across the industry, thought leaders and influencers but most importantly everyday engineers and managers—those out there working elbows-deep in cloud native code and architecture—to contribute and participate. Hope to see you there!

**A/B TESTING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa01.png | Comparing multiple versions of something (a feature, new functionality, UI, etc.) under real customer use conditions quickly gives useful data about which performs better. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**AGILE FOR NEW DEVELOPMENT**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa02.png | Balance proficiency and innovation by building a separate time for each into your development cycle. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**ARCHITECTURE DRAWING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa03.png | A picture—or, in this case, a high-level outline sketch of your system’s basic architecture—can replace a thousand words, save time, and prevent misunderstandings. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**AUTOMATED INFRASTRUCTURE**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa04.png | The absolute majority of operational tasks need to be automated. Automation reduces interteam dependencies, which allows faster experimentation and leads in turn to faster development. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**AUTOMATED TESTING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa05.png | Shift responsibility for testing from humans (manual) to an automated testing framework so the quality of the released products is consistent and continuously improving, allowing developers to deliver faster while spending more of their time improving features to meet customer needs. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**AVOID REINVENTING THE WHEEL**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa06.png | When possible, purchase solutions for any need that is not your actual core business instead of trying to custom-build perfect tools. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**BIG BET**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa07.png | When enough information is available, commit to a significant solution for moving the cloud migration forward. Focus on execution rather than research. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**BLAMELESS INQUIRY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa08.png | When a problem occurs, focusing on the event instead of the people involved allows them to learn from mistakes without fear of punishment. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**BUILD-RUN TEAMS (“CN DevOps”)**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa09.png | Dev teams have full authority over the services they build, not only creating but also deploying and supporting them. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**BUSINESS CASE**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa10.png | Before launching a cloud native transformation, an enterprise’s leadership must make sure the initiative is needed and that the benefits will justify the investment. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**CO-LOCATED TEAMS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa11.png | Teams that work together in person develop naturally closer relationships and better collaborative problem-solving abilities, which in turn nurtures greater innovation. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**COMMUNICATE THROUGH APIS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa12.png | In a highly distributed system, microservices must communicate with one another via stable and strongly segregated APIs. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**COMMUNICATE THROUGH TRIBES**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa13.png | Create groups of people who have similar skills but are on different teams to cross-pollinate ideas across the company and provide valuable whole-organization perspective. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**CONTAINERIZED APPS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa14.png | When an application is packaged in a container with all its necessary dependencies, it does not rely on the underlying runtime environment and so can run agnostically on any platform. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**CONTINUOUS DELIVERY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa15.png | Keeping a short build/test/deliver cycle means code is always ready for production and features can be immediately released to customers—and their feedback quickly returned to developers. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**CONTINUOUS DEPLOYMENT**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa16.png | Continuous deployment automatically and seamlessly pushes code that has been accepted in the continuous integration/continuous delivery cycle into the production environment. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**CONTINUOUS INTEGRATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa17.png | Frequent integration of small iterative changes speeds overall delivery and improves the quality of the code. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**CORE TEAM**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa18.png | Dedicate a team of engineers and architects to the task of uncovering the best transformation path and implementing it along the way. This reduces risk embedded in the transformation while the team gains experience helpful for onboarding the remaining teams later. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**DATA-DRIVEN DECISION MAKING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa19.png | Collect data, extract patterns and facts, and use them to make inferences to drive objective decision making. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**DECIDE CLOSEST TO THE ACTION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa20.png | Those nearest to a change action get the first chance to make any decisions related to it. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**DELAYED AUTOMATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa21.png | Automate processes only after a problem has been completely solved and the solution has been run manually a few times. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**DEMO APPLICATIONS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa22.png | Teams onboarded to the new cloud native system receive demo applications as an educational starting point for building their own cloud native applications. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**DESIGN THINKING FOR RADICAL INNOVATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa23.png | Whether faced with a radical new idea or a big problem, Design Thinking can be used as a process for first brainstorming a robust list of solutions and then narrowing it down to the best possibilities for actual exploration. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**DESIGNATED STRATEGIST**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa24.png | When you’re running forward as fast as you can, it’s difficult to look around you—so appoint one person within the organization to be in charge of situational awareness. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**DEVELOPER STARTER PACK**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa25.png | Provide a “starter kit” of materials, guides, and other resources to help new teams onboard to the new cloud native system quickly and with confidence. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**DISTRIBUTED SYSTEMS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa26.png | When software is built as a series of fully independent, loosely coupled services, the resulting system is, by design, fast, resilient, and highly scalable. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**DYNAMIC SCHEDULING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa27.png | An orchestrator (typically Kubernetes) is needed to organize the deployment and management of microservices in a distributed container-based application to assign them across random machines at the instant of execution. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**DYNAMIC STRATEGY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa28.png | Today’s tech-driven marketplace is a constantly shifting environment, no matter what business you are in—so your game plan needs to shift right along with it. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**EXECUTIVE COMMITMENT**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa29.png | To ensure allocation of sufficient resources and reasonable delivery time frames, large-scale projects such as cloud native transformation require strong commitment from the top executive team. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**EXIT STRATEGY OVER VENDOR LOCK-IN**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa30.png | Public cloud vendors can handle all aspects of building and operating a cloud native platform, and their tools are often excellent—but when committing to a vendor/technology/platform it’s important to identify an alternative solution and any costs associated with switching over. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**EXPLORATORY EXPERIMENTS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa31.png | When dealing with a complex problem with no obvious available solution, run a series of small experiments to evaluate the possible alternatives and learn by doing. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**FULL PRODUCTION READINESS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa32.png | Make sure your platform is fully provisioned with CI/CD, security, monitoring, observability, and other features essential to production readiness before you try to take it live. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**GRADUAL ONBOARDING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa33.png | One to three months before the new platform goes live, begin training a couple of teams at a time with a pause between each cohort to incorporate feedback and improve the process/materials. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**GRADUALLY RAISING THE STAKES**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa34.png | In an uncertain environment, slowly increase investment in learning and information gathering; eventually you uncover enough information to reduce risk and make better-informed decisions. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**INTERNAL EVANGELISM**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa35.png | Provide plenty of information about the transformation across the entire company right from the start to create understanding, acceptance of, and support for the initiative. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**INVOLVE THE BUSINESS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa36.png | The business teams and the tech teams need to collaborate to create an effective customer-feedback loop that drives product improvement. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**LEAN FOR OPTIMIZATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa37.png | When a stable system delivers the value that’s intended and is not a target for technical innovation, focus on improving the system by continuously and incrementally improving delivery and maintenance processes with emphasis on repeatability. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**LEARNING LOOP**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa38.png | Building feedback collection into the delivery process closes the loop between engineers and the people who use their products, putting the customer at the center of the product development cycle. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**LEARNING ORGANIZATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa39.png | An organization skilled at acquiring information, creating insight, and transferring knowledge can tolerate risk with confidence and solve difficult problems through experimentation and innovation. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**LIFT AND SHIFT AT THE END**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa40.png | It’s important not to approach a cloud native transformation by simply attempting a full “lift and shift” of your existing system onto the cloud. But it *can* be smart to move some intact pieces of it at the very end. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**MANAGE FOR CREATIVITY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa41.png | Teams charged with innovation need the open-ended freedom to experiment their way to solutions without pressure for delivering specific results on a set schedule—and the freedom to sometimes fail along the way. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**MANAGE FOR PROFICIENCY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa42.png | Teams delivering stable and highly repetitive or algorithmic work should be managed for high quality and optimal efficiency. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**MEASURE WHAT MATTERS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa43.png | People optimize their actions based on how their work is measured. Assessing the wrong things leads people to optimize for the wrong goals. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**MICROSERVICES ARCHITECTURE**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa44.png | To reduce the costs of coordination among teams delivering large monolithic applications, build the software as a suite of modular services that are built, deployed, and operated independently. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**MVP (PLATFORM)**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa45.png | Once Exploratory Experiments and PoCs have uncovered a probable path to success, build a simple version of a basic but fully functional and production-ready platform with one to three small applications running on it in production. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**NO LONG TESTS IN CI/CD**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa46.png | Execute non-critical long running tests in the background so they don’t block delivery to production. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**NO REGRET MOVES**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa47.png | Small, quick actions that require little investment of time and money but increase knowledge, reduce risk, and benefit the entire organization—inside or outside of a transformation scenario. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**OBJECTIVE SETTING**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa48.png | After establishing a transformation vision, the next step is to translate it into pragmatic goals and actions for moving the initiative ahead. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**OBSERVABILITY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa49.png | Cloud native distributed systems require constant insight into the behavior of all running services in order to understand the system’s behavior and to predict potential problems or incidents. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**ONGOING EDUCATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa50.png | Continuously introduce new ways and improve existing ones to help teams continually develop their cloud native knowledge and skills. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**OPEN SOURCE INTERNAL PROJECTS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa51.png | Use open source solutions for any software need that is not directly related to the company’s core business value. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**OPTIONS AND HEDGES**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa52.png | Research has created deeper understanding, and a few potentially promising transformation paths have begun to emerge. Continue reducing the risk by focusing on the most promising options and developing them further. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**PERIODIC CHECK-UPS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa53.png | Frequently reassess vision and objectives to ensure these remain the correct direction to proceed as the business environment shifts. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**PERSONALIZED RELATIONSHIPS FOR CO-CREATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa54.png | Solutions to complex problems are best created collaboratively by teams with high levels of interpersonal connection. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**PLATFORM TEAM**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa55.png | Create a team to be in charge of architecting, building, and running a single, consistent, and stable cloud native platform for use by the entire organization so that developers can focus on building applications instead of configuring infrastructure. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**PRIVATE CLOUD**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa56.png | A private cloud approach, operated either over the internet or on company-owned on-premises infrastructure, can offer the benefits of cloud computing services like AWS while restricting access to only select users. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**PRODUCTIVE FEEDBACK**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa57.png | People are more engaged and creative when they feel comfortable receiving constructive information about their behavior and giving the same in return. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**PROOF OF CONCEPT (PoC)**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa58.png | Before fully committing to a solution that can significantly affect the future, build a small prototype to demonstrate viability and gain better understanding. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**PSYCHOLOGICAL SAFETY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa59.png | When team members feel they can speak up, express concern, and make mistakes without facing punishment or ridicule, they can think freely and creatively and are open to taking risks. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**PUBLIC CLOUD**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa60.png | Instead of using your own hardware, rely on the hardware managed by public cloud vendors whenever possible. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure & Cloud for full version.* |

**REDUCE COST OF EXPERIMENTATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa61.png | When someone has an idea that requires validation, the costs of doing experiments around it needs to be as low as possible. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**REFERENCE ARCHITECTURE**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa62.png | Provide an easily accessible document laying out a standardized system architecture for all teams to use for building their applications/components. This ensures higher architectural consistency and lowers development costs via better reusability. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**REFLECTIVE BREAKS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa63.png | Build periodic times into the business delivery cycle dedicated to reviewing current strategy in light of shifting market conditions or other new information. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy & Risk Management for full version.* |

**REMOTE TEAMS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa64.png | If teams must be distributed, whether across a city or a continent, build in regular in-person retreats/work sessions as well as robust channels for close and free-flowing communication. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**REPRODUCIBLE DEV ENVIRONMENT**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa65.png | Developers need to test their daily work in an environment that is easy to spin up and that matches production tooling as closely as possible. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**RESEARCH THROUGH ACTION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa66.png | People can sometimes use research as a way to avoid making decisions, so hands-on learning through small experiments builds confidence and jump-starts progress. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**RISK-REDUCING DEPLOYMENT STRATEGIES**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa67.png | Employ release tactics to decrease the chance of problems happening when changes are introduced into the production system. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**SECURE SYSTEM FROM THE START**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa68.png | Build security into the platform beginning with the earliest versions to ensure your distributed system is unbreachable by design. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**SELF-SERVICE**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa69.png | In cloud native everyone can do their own provisioning and deployment with no handoffs between teams. *See*[*Chapter 10*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch10.html#patterns_for_infrastructure_and_cloud)*: Patterns for Infrastructure and Cloud for full version.* |

**SERVERLESS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa70.png | The soon-to-arrive future is event-driven, instantaneously scalable services (functions) on the cloud. *See*[*Chapter 9*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch09.html#patterns_for_development_and_process)*: Patterns for Development and Process for full version.* |

**SRE TEAM**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa71.png | The SRE (Site Reliability Engineering) team helps the development teams to maintain and improve the application (not the platform or infrastructure). *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**STRANGLE MONOLITHIC APPLICATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa72.png | Gradually split pieces of the old monolithic application one by one, re-archtect them into services, and move them over time to the new CN platform. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**STRANGLE MONOLITHIC ORGANIZATION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa73.png | Just as the new tools, technologies, and infrastructure gradually roll out over the course of a transformation initiative, the organization and its teams must also evolve to work with them properly. *See*[*Chapter 8*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch08.html#patterns_for_organization_and_culture)*: Patterns for Organization and Culture for full version.* |

**THREE HORIZONS**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa74.png | Proportional allocation of resources among delivery, innovation, and research makes an organization responsive to change while reliably delivering core business value. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**TRANSFORMATION CHAMPION**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa75.png | When a person is promoting a good new idea that can take the company’s goals and values into the future, recognize and empower them to lead the action. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**VALUE HIERARCHY**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa76.png | When an organization’s values are clearly stated and prioritized, as well as fully internalized across the company, people have the basis for making day-to-day decisions without needing to seek consent or permission/approval. When an organization’s values are clearly stated and prioritized, day-to-day decisions can be made without seeking consent or permission/approval. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

**VISION FIRST**

|  |  |
| --- | --- |
| https://learning.oreilly.com/api/v2/epubs/urn:orm:book:9781492048893/files/assets/cntr_aa77.png | Defining a high-level transformation path as the very first step helps set the right course through an uncertain environment. *See*[*Chapter 7*](https://learning.oreilly.com/library/view/cloud-native-transformation/9781492048893/ch07.html#patterns_for_strategy_and_risk)*: Patterns for Strategy and Risk Management for full version.* |

v