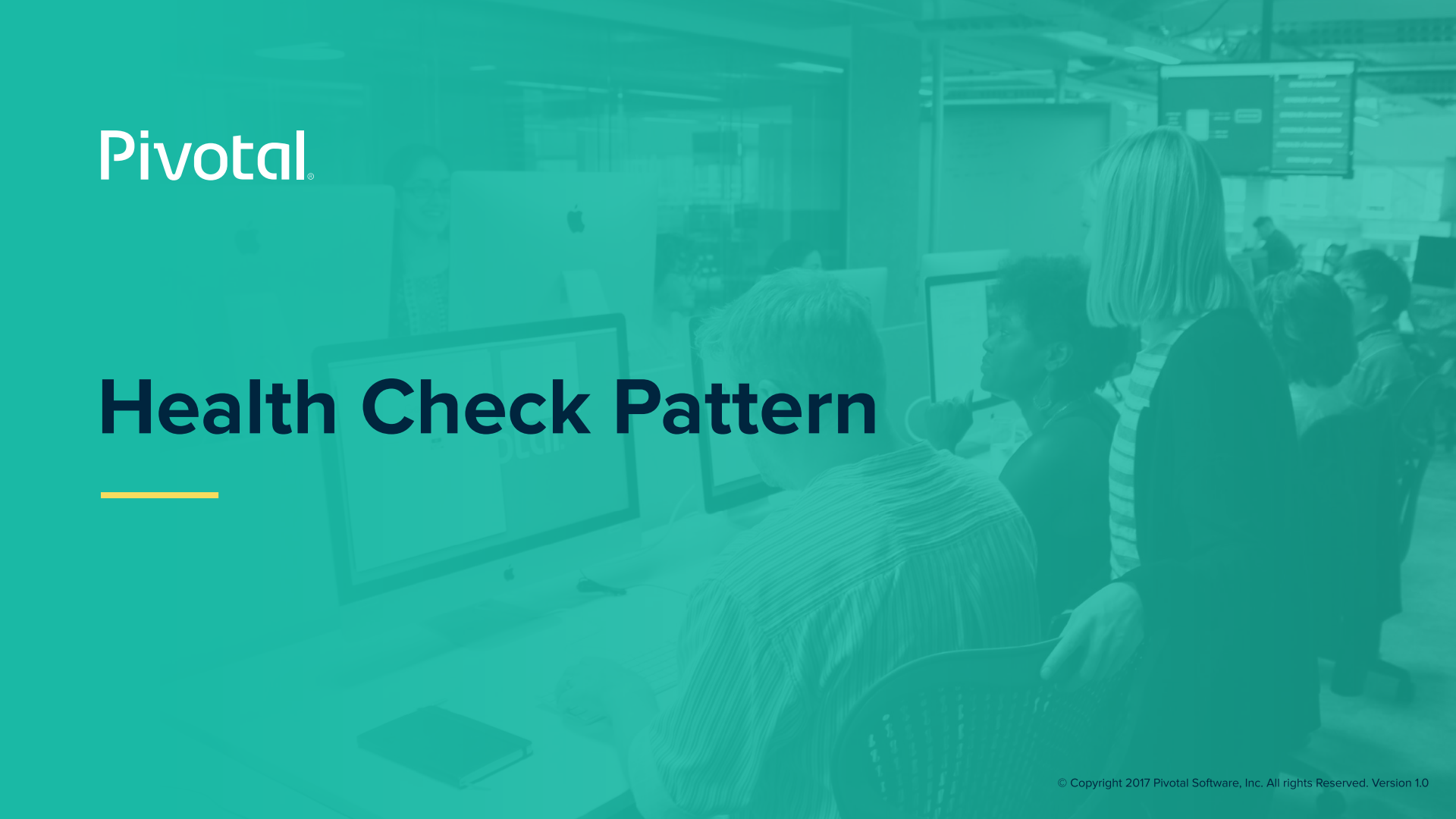
Pivotal

Health Check Pattern



Problems

- What happens if a component becomes slow or unstable,
  but it is still alive?
- Will the culprit component behavior cascade to other components in
  my system?

Solutions

- Let it crash so it does not cascade to another component.
- Advertise its unhealthy state so someone, or something, can do something about it.

We focus on 2nd option in this lesson...

Solution - Publish a Health Check

- A component provides a mechanism to advertise its health.
- The mechanism is accessible:
  - Monitoring Tools
  - Management Tools
  - Platform Tools

Solution - Handshake

- Consuming components can query a producer's health:
  - Monitoring Tools
  - Platform Tools
  - Determine whether or not to avoid a call to a component that is advertising failed health state.
- By failing fast, a consumer can avoid the impact of a slow-down in the system induced by downstream producers.

Solution - Actuator and Health Groups

- If using Spring Boot Actuator health endpoint for advertised health check, consider using Health Groups:
  - Generate a dedicated endpoint with only the health indicators you want to calculate an app's up or down state for disposability
  - Make sure to turn off details to keep the endpoint secure!

Solution Implementations

In this course you will see use of Spring ecosystem components to provide Health Check and Handshake behaviors:

- *Spring Boot Actuator* provides the core health indicator behavior to announce an application's health.
- *Spring Cloud Netflix OSS Eureka* can use registered application Actuator health indicators to drop unhealthy instances from its *Service Registry*.
- *Spring Cloud Load Balancer Client* can leverage an *IPing* rule to drop unhealthy instances from its *server pool*.

Alternate Solution - Back Pressure

- Producers can choose to block when running out of queued resources
- Use of flow control to block upstream to throttle consumers
- Commonly used pattern in Reactive (non-blocking) architectures (which are not yet covered as part of this course)

Platform Solutions

- Outside of this course, there are other tools that can monitor for health of, and manage your components:
  - PCF `http` health checks
  - Kubernetes health checks
  - Load Balancer Application Layer 7 health checks