Freezing and Defrosting Cloud Applications: Automated Saving and Restoring of Running Applications

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DAST OPT

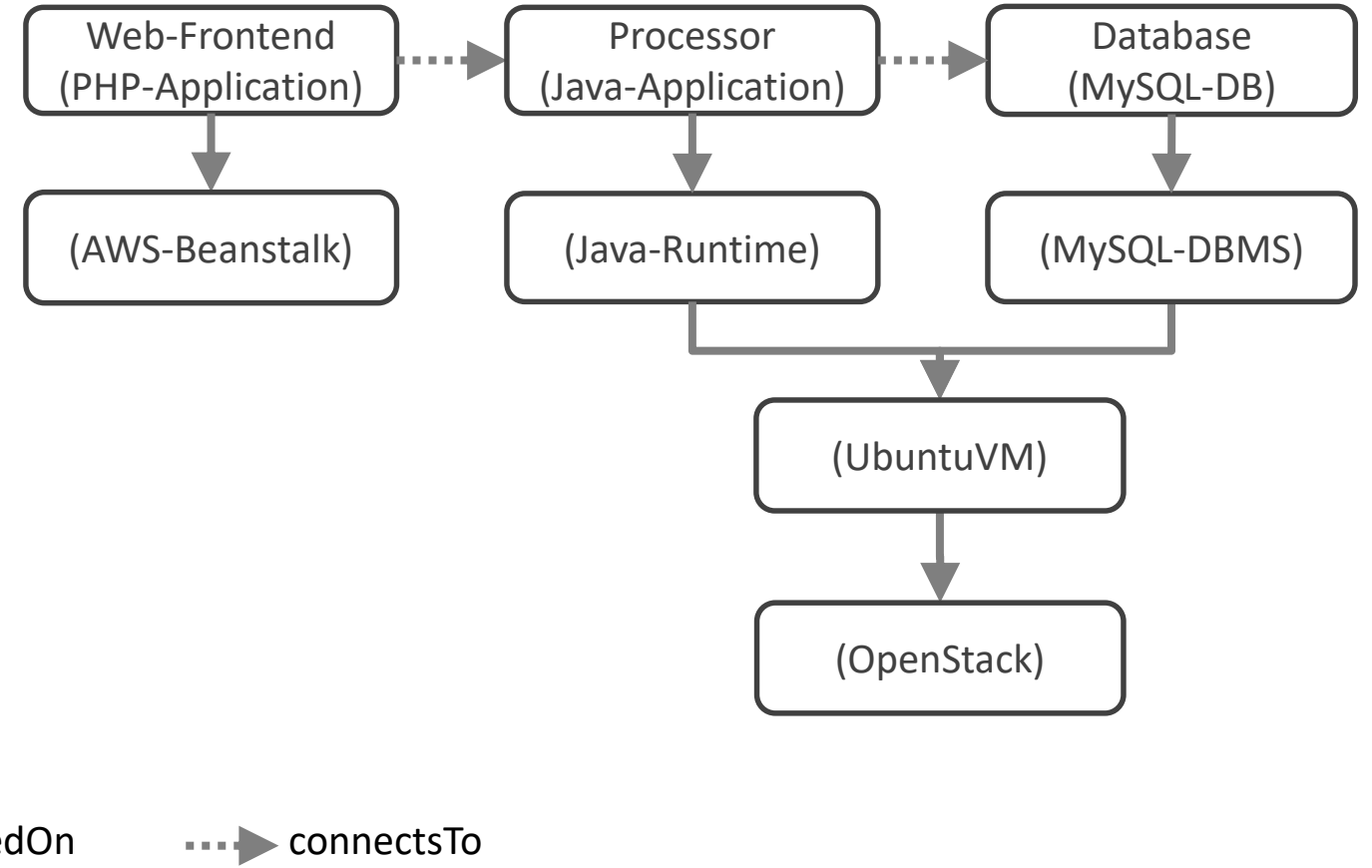
Deployment Technologies

- Deployment of applications is:
  - Error-prone
  - Time consuming

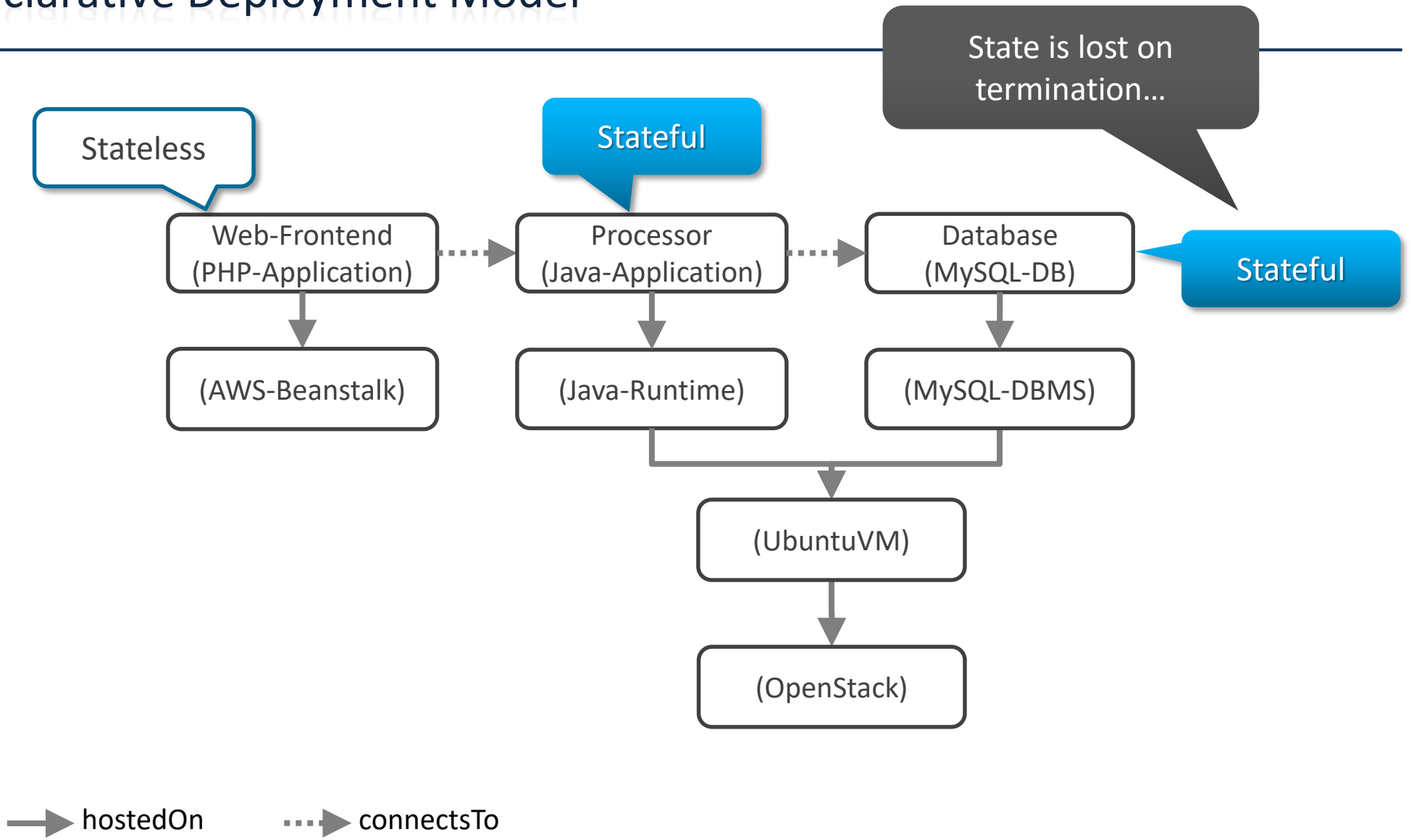
➔ Automate the deployment of applications

- Declarative Model
  - Model **WHAT** should be deployed
- Imperative Model
  - Model **HOW** the deployment is performed

Declarative Deployment Model



Declarative Deployment Model



Motivation

- Applications holding internal state
  - E.g., business data such as customer information and orders
- Applications only needed for specific times, e.g.:
  - Between 6am and 8pm
  - Periodically every ~2 years: e.g., “Wahl-O-Mat”

➔ Terminate applications while not needed

➔ Save resources ⇔ save money

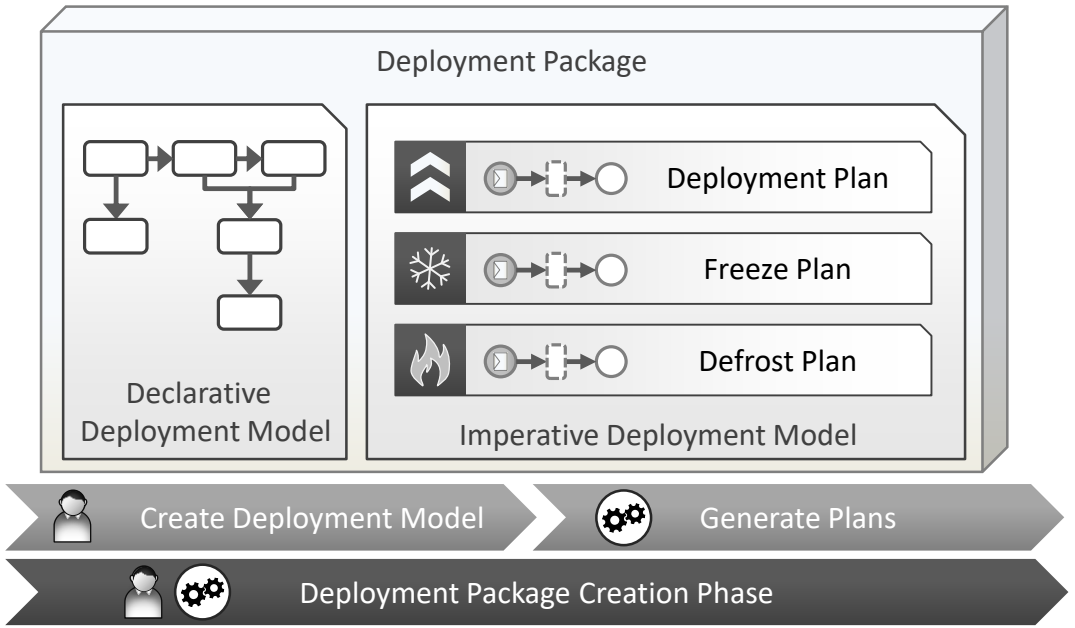
➔ State is lost

➔ How to save the application state upon termination?

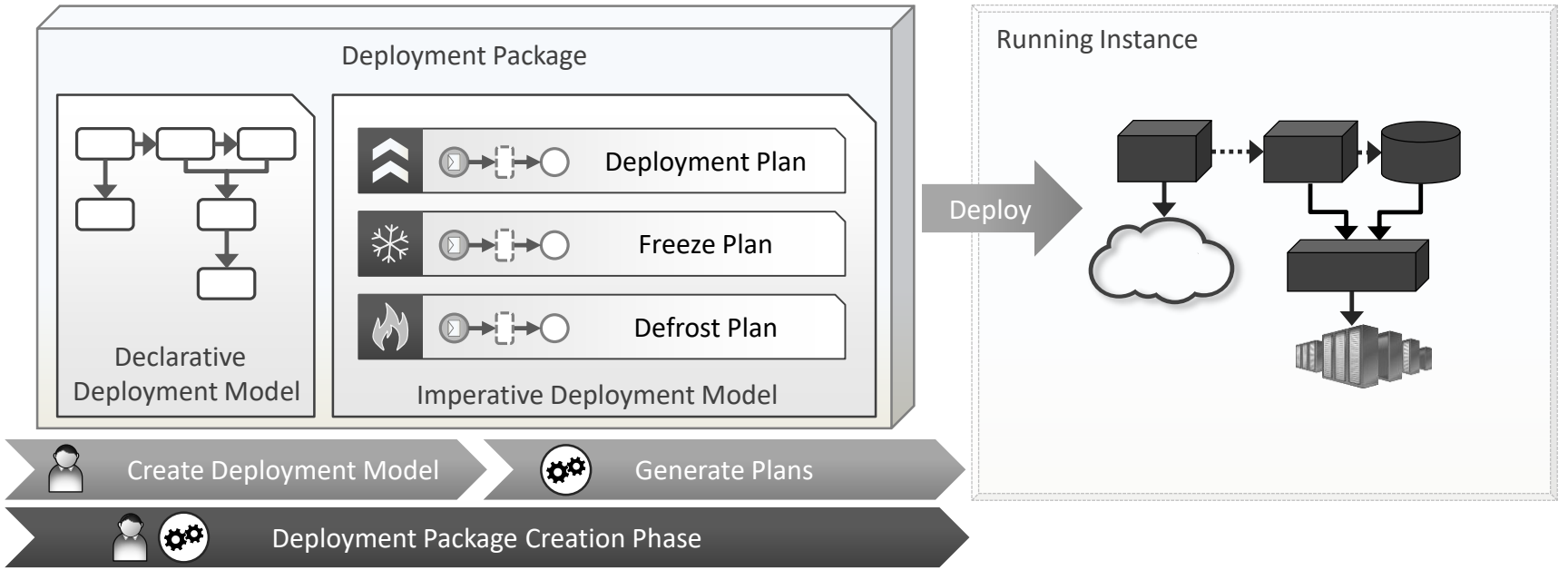
➔ How to restart the application in the state it was terminated?

Freeze and Defrost Approach

Approach: Overview



Approach: Overview



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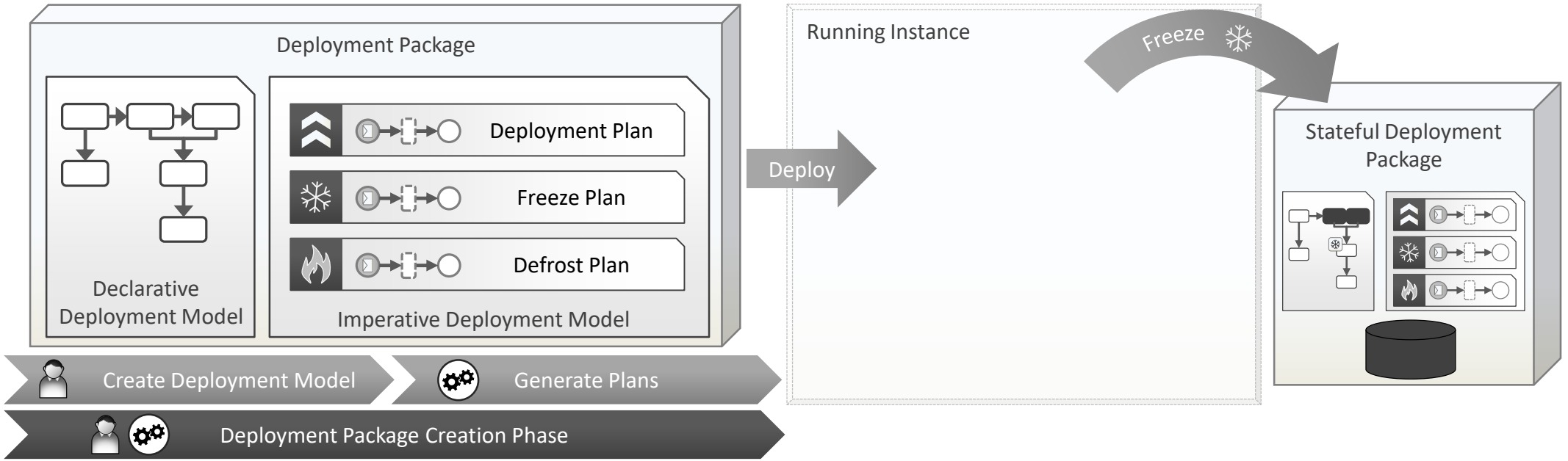

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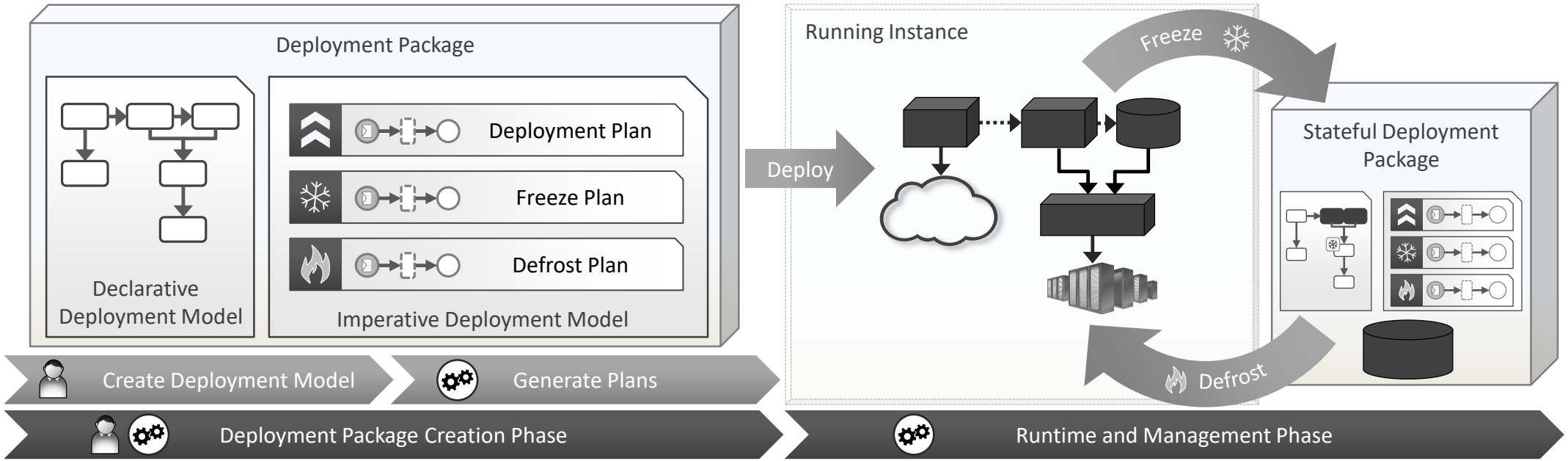
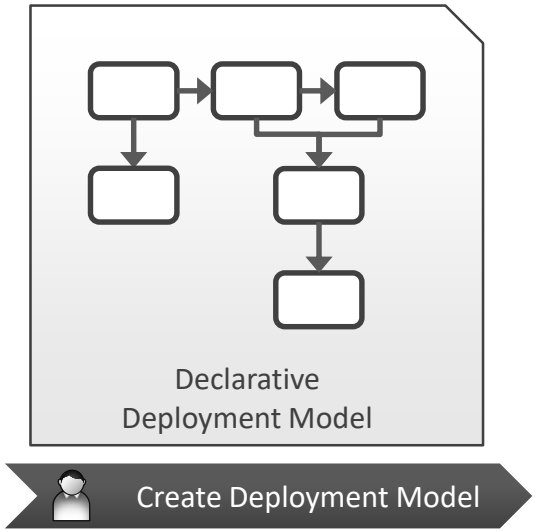


Approach: Generate Freeze & Defrost Plans



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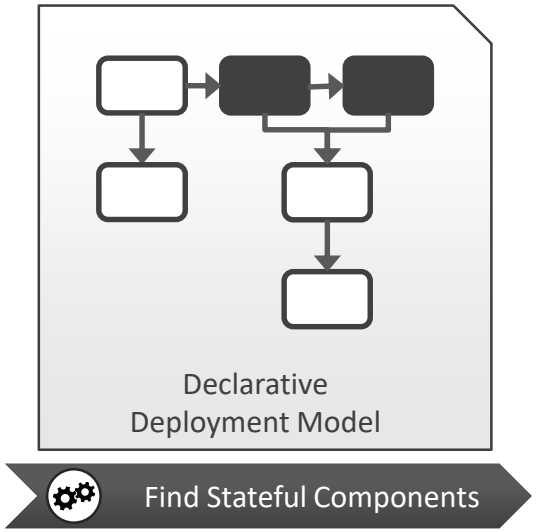

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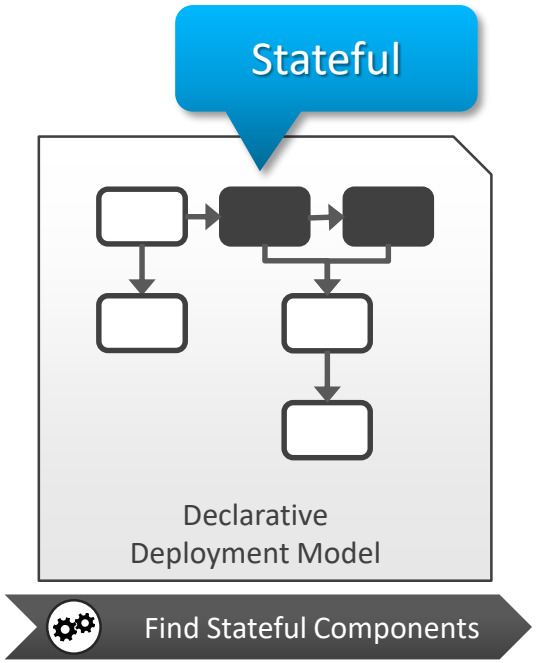

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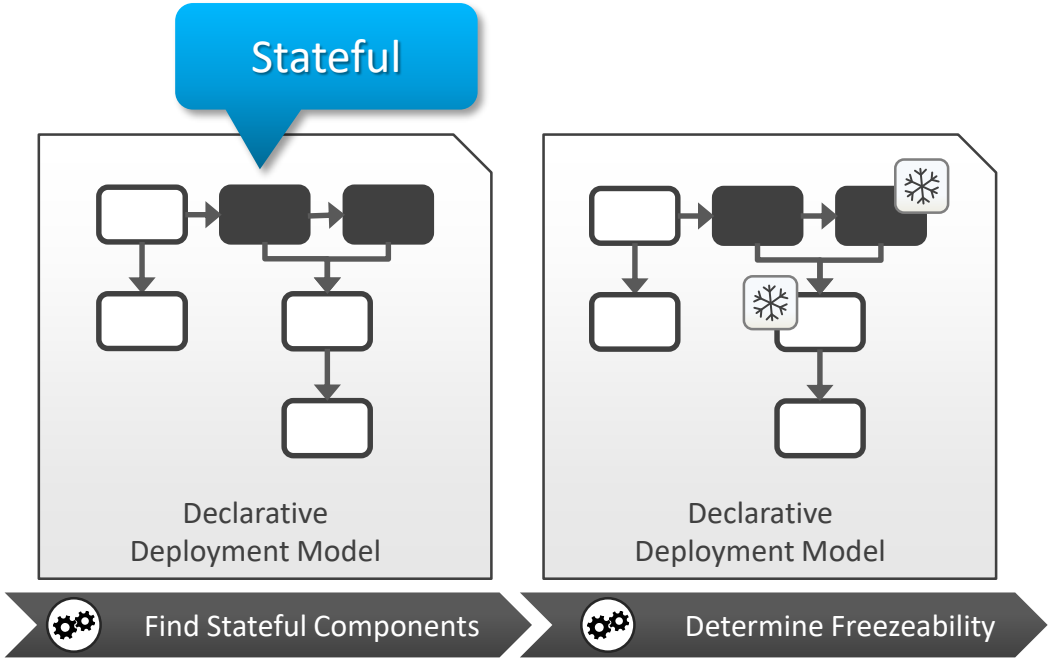

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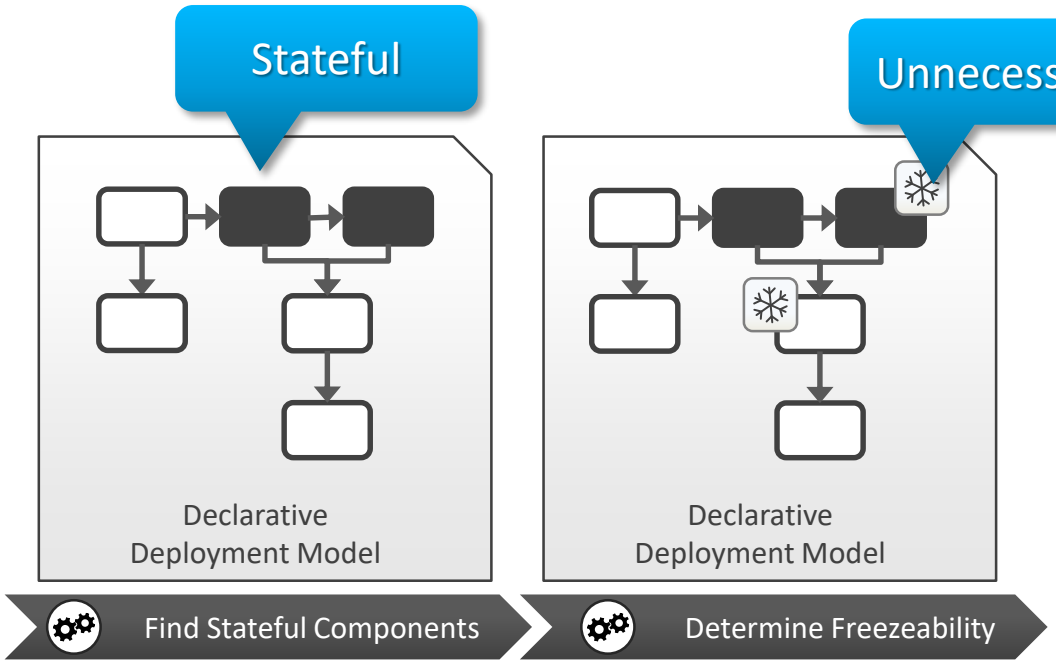

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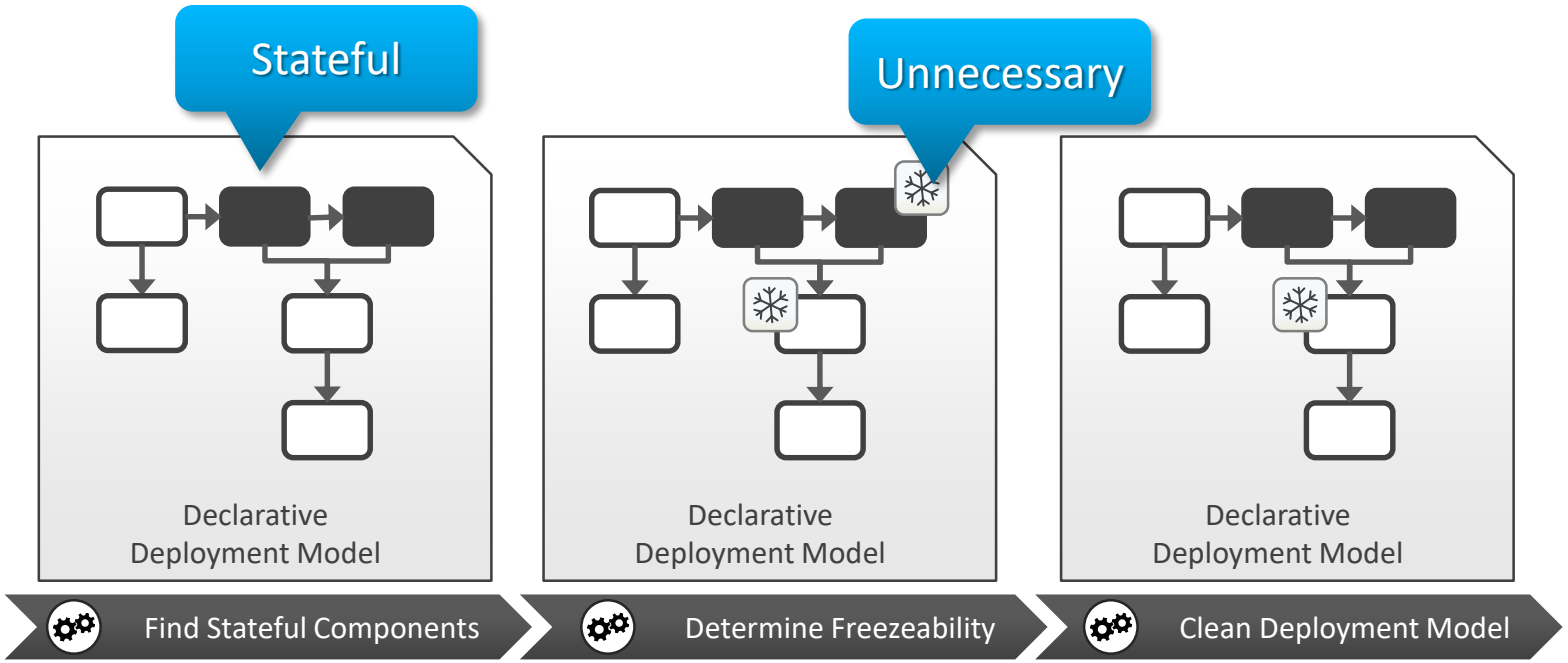

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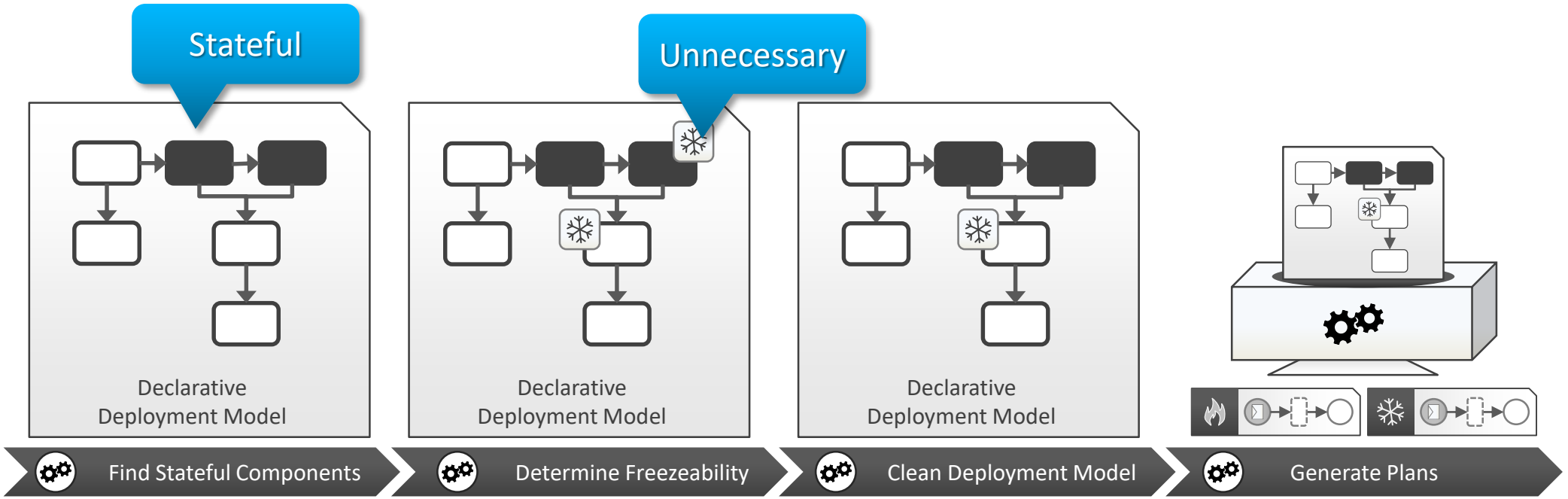

Thank you ☺