

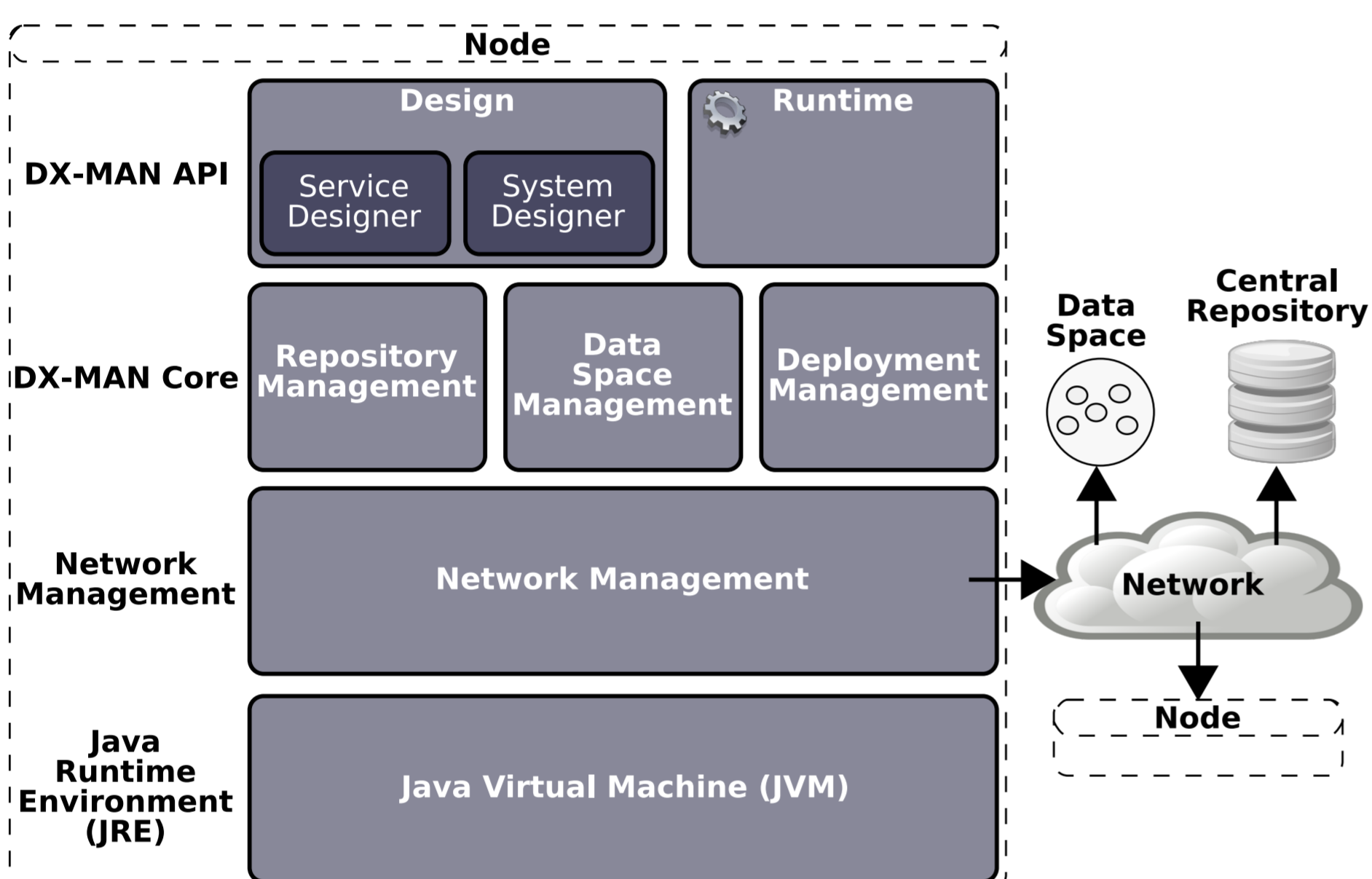
DX-MAN: A Platform for Total Compositionality in Service-Oriented Architectures

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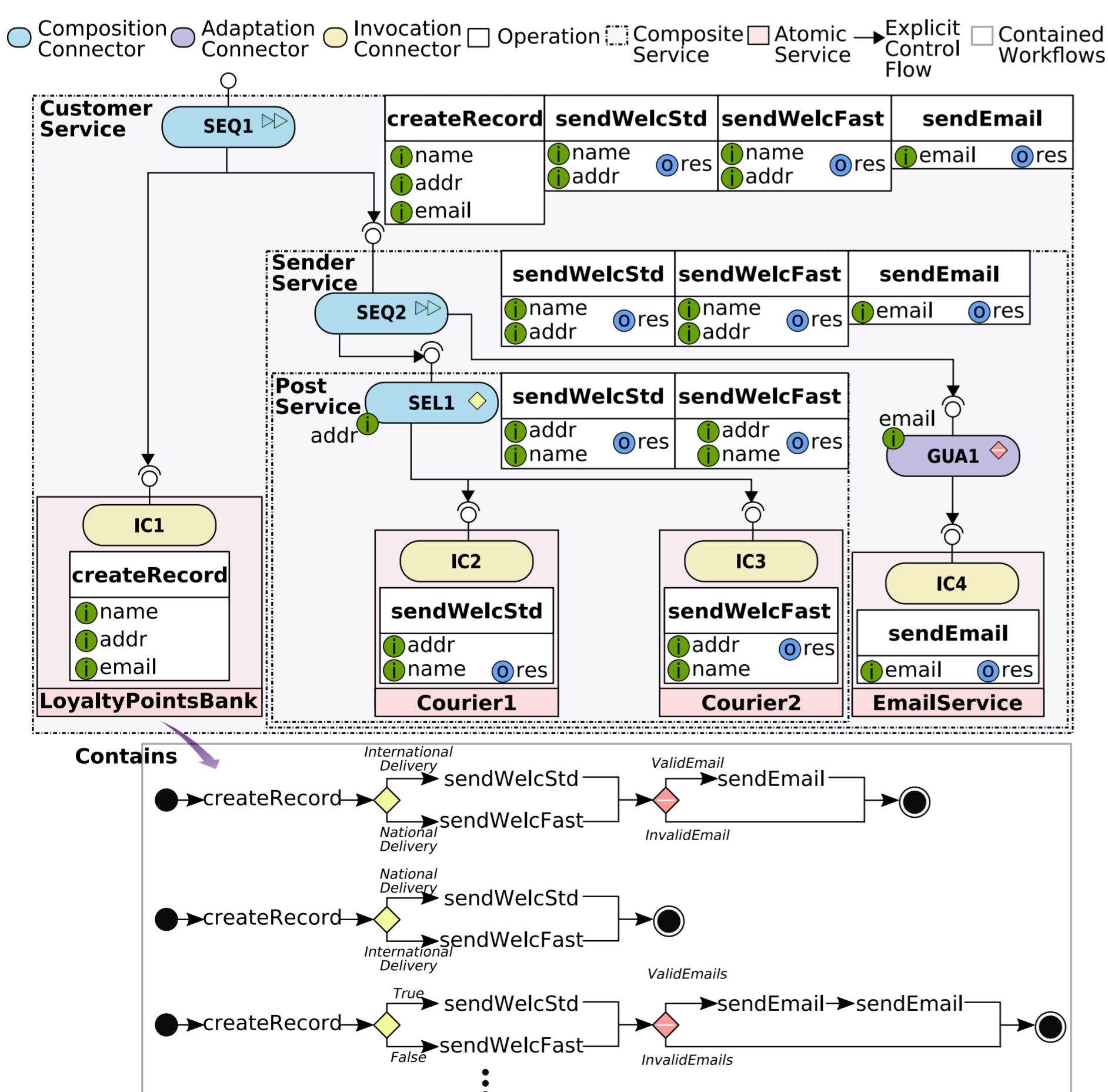
Introduction

Service-Oriented Architectures (SOA) are popular in the software industry because they enable high modularity. Many software platforms for service composition have been proposed. However, such platforms only provide support for partial compositionality, since they are based on orchestration [1], choreography [2, 3] or hierarchical orchestration [4, 5, 6]. Partial compositionality [7] requires software developers to design individual workflows for the invocation of service operations, leading to combinatorial explosion and, therefore, increasing the complexity of SOA system development. This poster presents DX-MAN, the first platform for total compositionality based on the hierarchical model we presented in [7], where services and exogenous connectors are first-class entities.

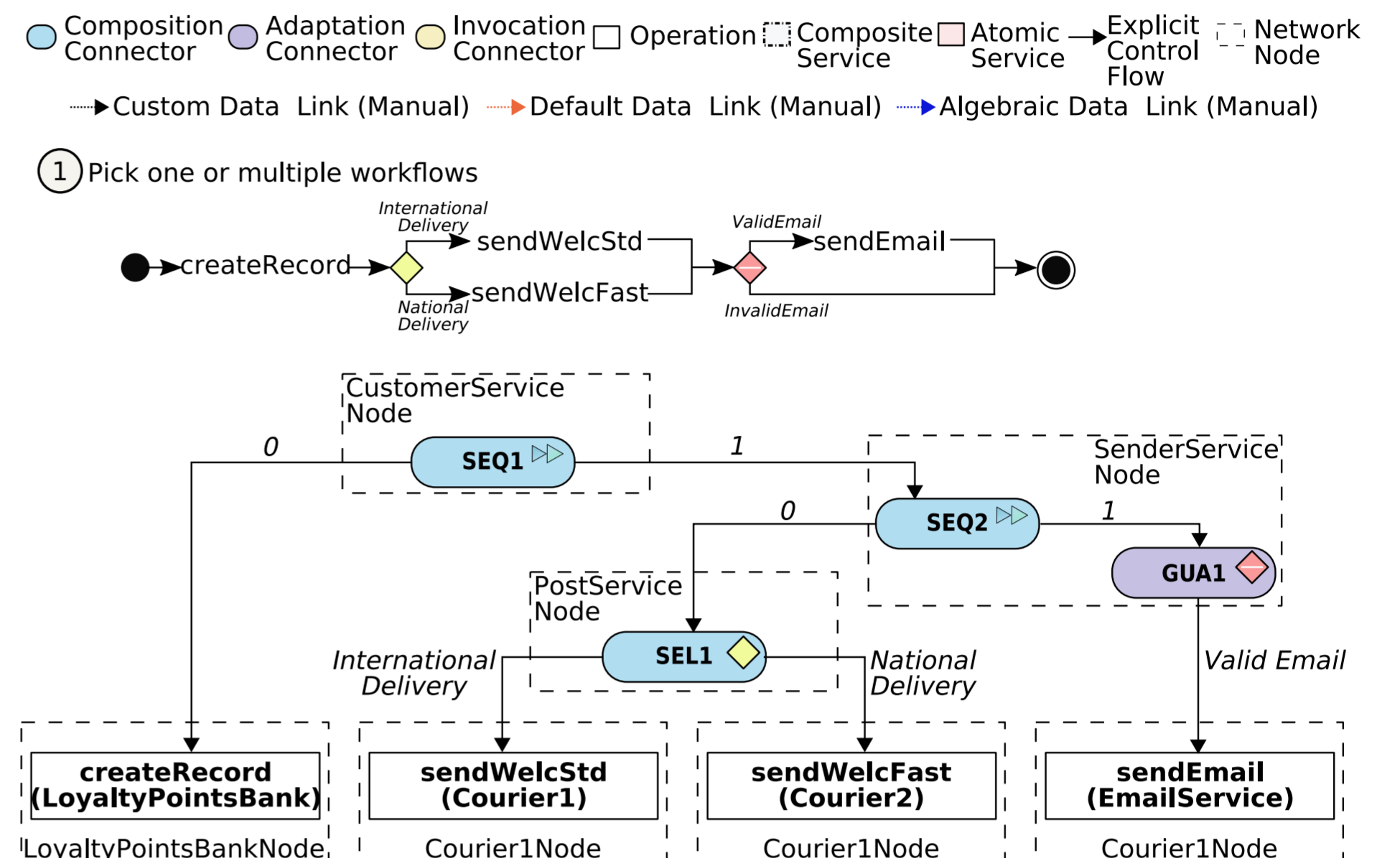
Platform Architecture



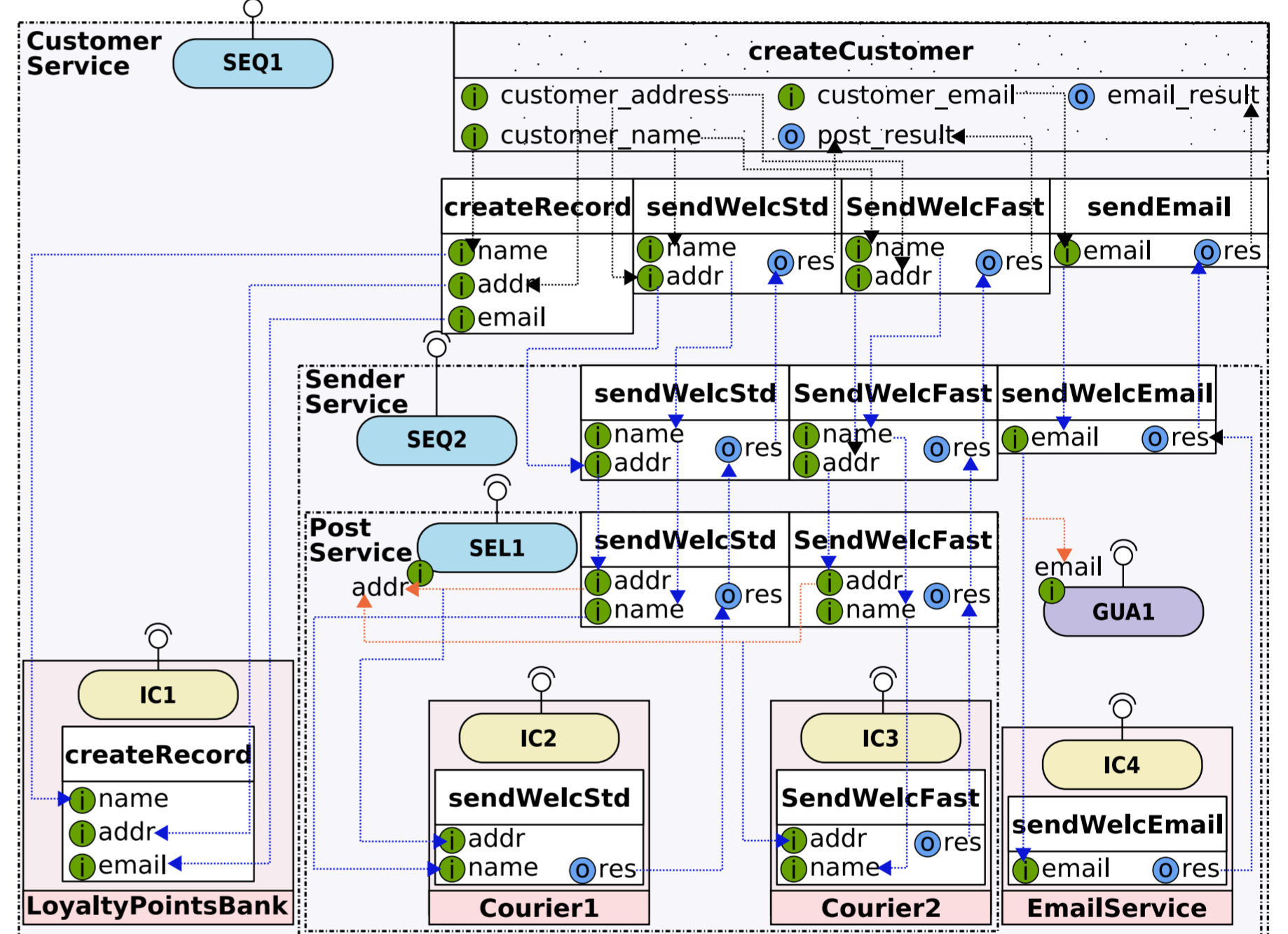
Case Study: MusicCorp (Design Phase)



Case Study: MusicCorp (Deployment Phase)



Optional: Create an operation facade (for the picked workflows) and design data links



Benefits

- ▶ Reuse: Only create one composite service and you will be able to pick up multiple workflows
- ▶ Separation of concerns: Easy to reason about distribution, data flow, control flow and computation separately
- ▶ Decoupling: Services do not have code to interact one another directly
- ▶ Location transparency: Services do not know other service locations
- ▶ Explicit control flow: Visible interactions between services.
- ▶ Incremental construction: Hierarchical bottom-up system construction

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