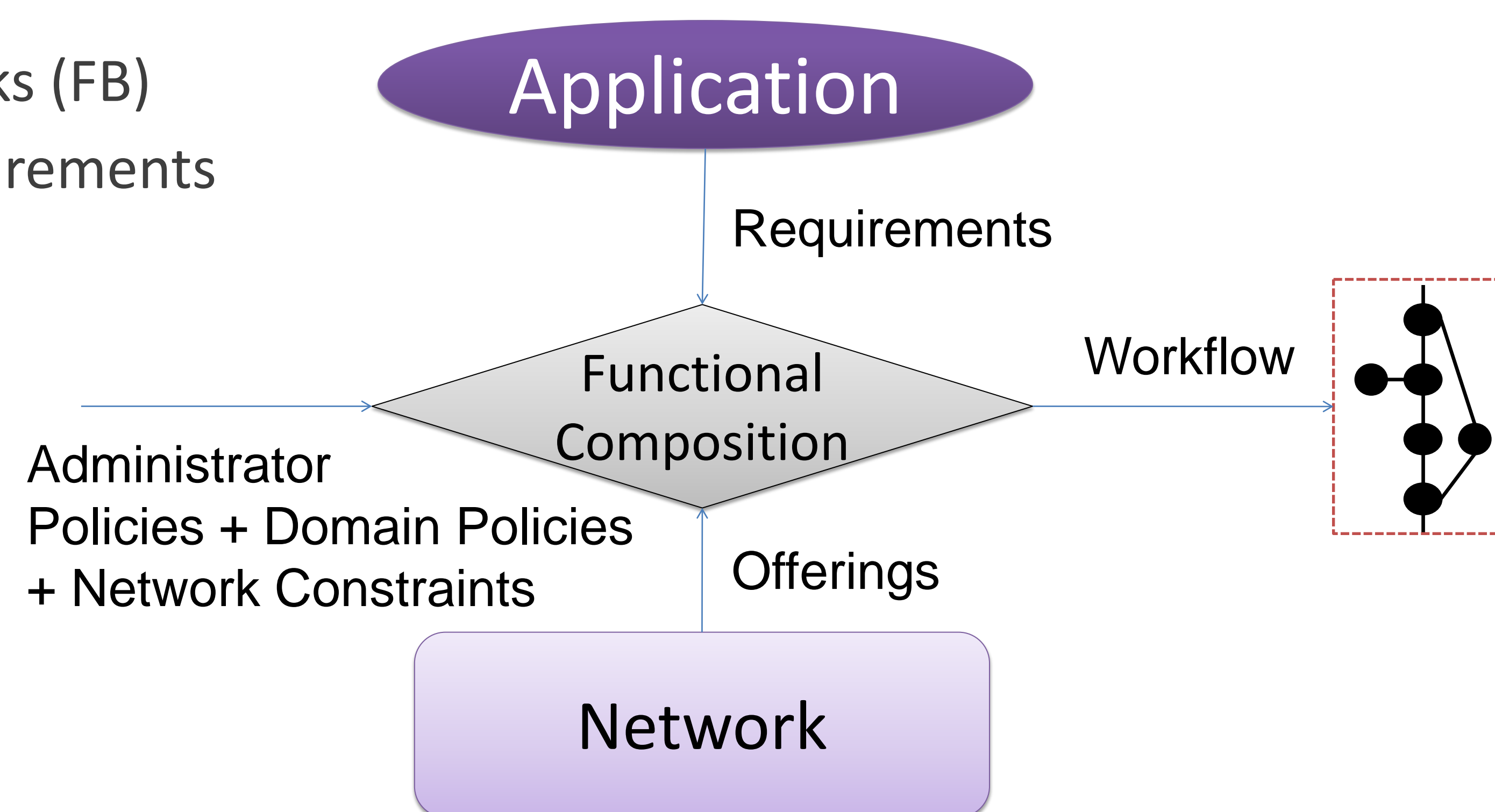
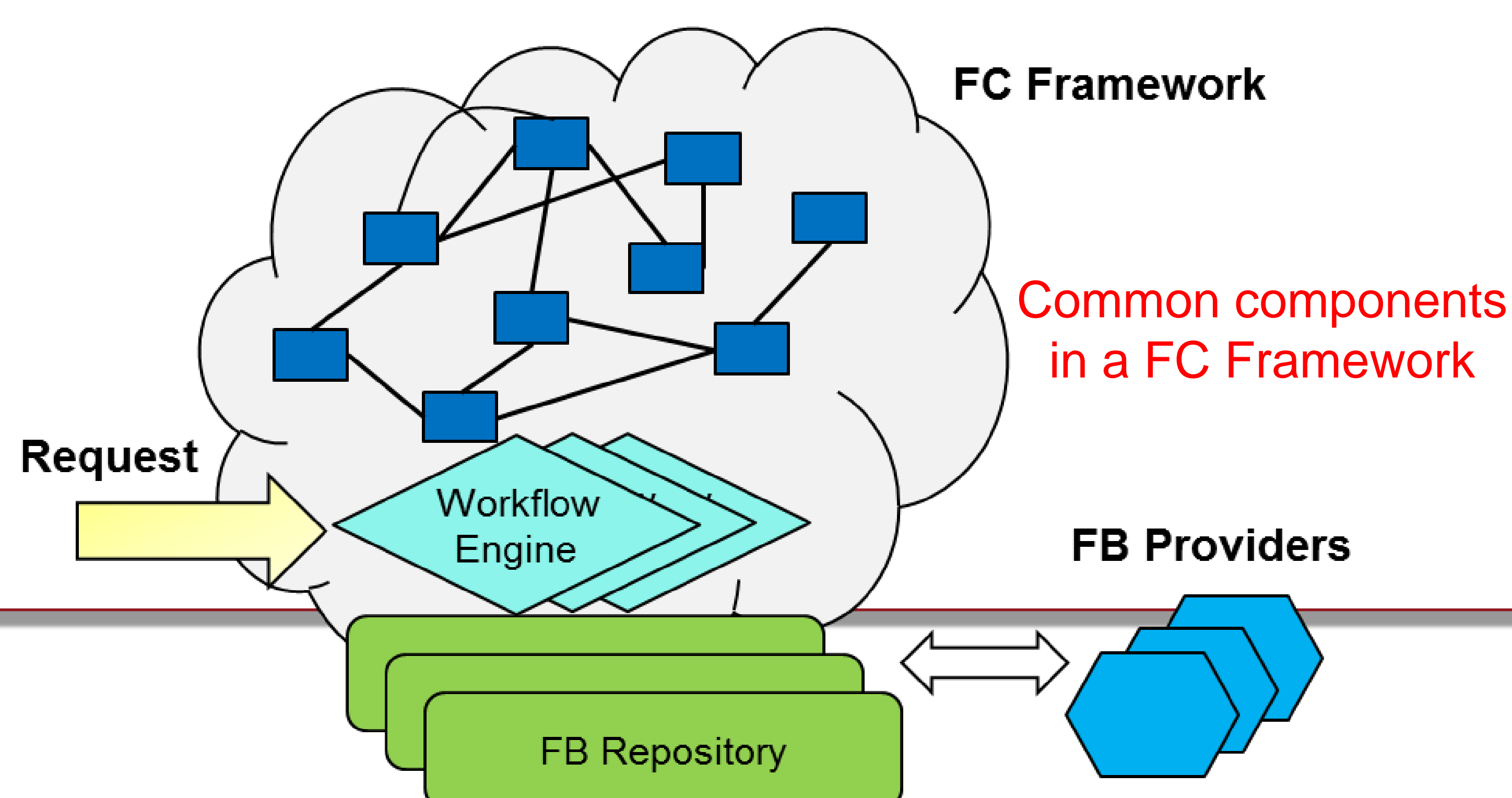


Common Functional Composition (FC) Concept

- ▶ Decomposing the layered network stacks into Functional Blocks (FB)
- ▶ Dynamically composing based on the Users/Applications requirements
- ▶ Inputs to functional composition process:

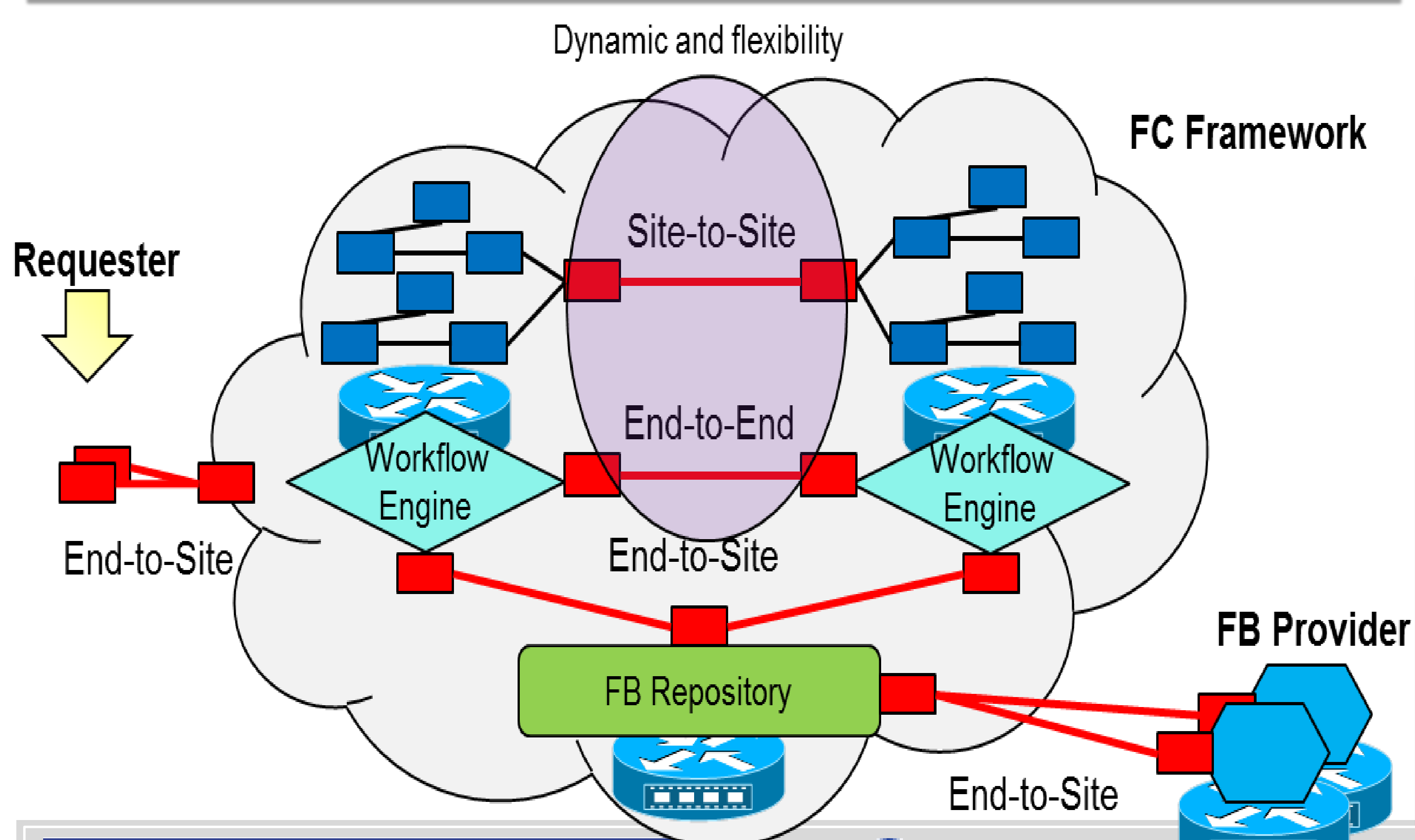


Security Threats

- ▶ Functional Composition Availability
 - ▶ Interrupting
 - ▶ Communication between common components
 - ▶ Connection between FBs
 - ▶ Workflow signalling
 - ▶ Requesting
 - ▶ Malicious FBs
- ▶ Functional Composition Integrity and Confidentiality
 - ▶ Sniffing data traffic between FBs
 - ▶ Forwarding the user data to a third party
 - ▶ Manipulating Workflow during signalling
 - ▶ Attacker can act as a legitimate Workflow Engine
 - ▶ Malicious FBs

Security Requirements

- ▶ FC common components security
 - ▶ Sensible points in a FC Framework
 - ▶ Communication between them must be secure
- ▶ Functional Block security
 - ▶ Insecure FB can cause security problems
 - ▶ Authentication
 - ▶ Conformance testing
 - ▶ Detection for anomalies
- ▶ FB Communication security
 - ▶ Communication between the FBs keeps the entire operability of the FC together
 - ▶ Availability, integrity and confidentiality
- ▶ Workflow security
 - ▶ Workflow specifies the processing steps
 - ▶ Authentication
 - ▶ Integrity
- ▶ Request security
 - ▶ Authentication
 - ▶ Monitoring the FC reaction



Outlook

- ▶ Functional Composition Security System
 - ▶ Communication security
 - ▶ Conformance testing
 - ▶ Anomaly detection and defence