



International Conference
"Distributed Computing and Grid-technologies
in Science and Education"

Improving the efficiency of distributed intelligent systems

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Outline

- Overview of the problem
- SOA as a solution for integration of weakly coupled components
- Improving the efficiency of components interaction
- Conclusion

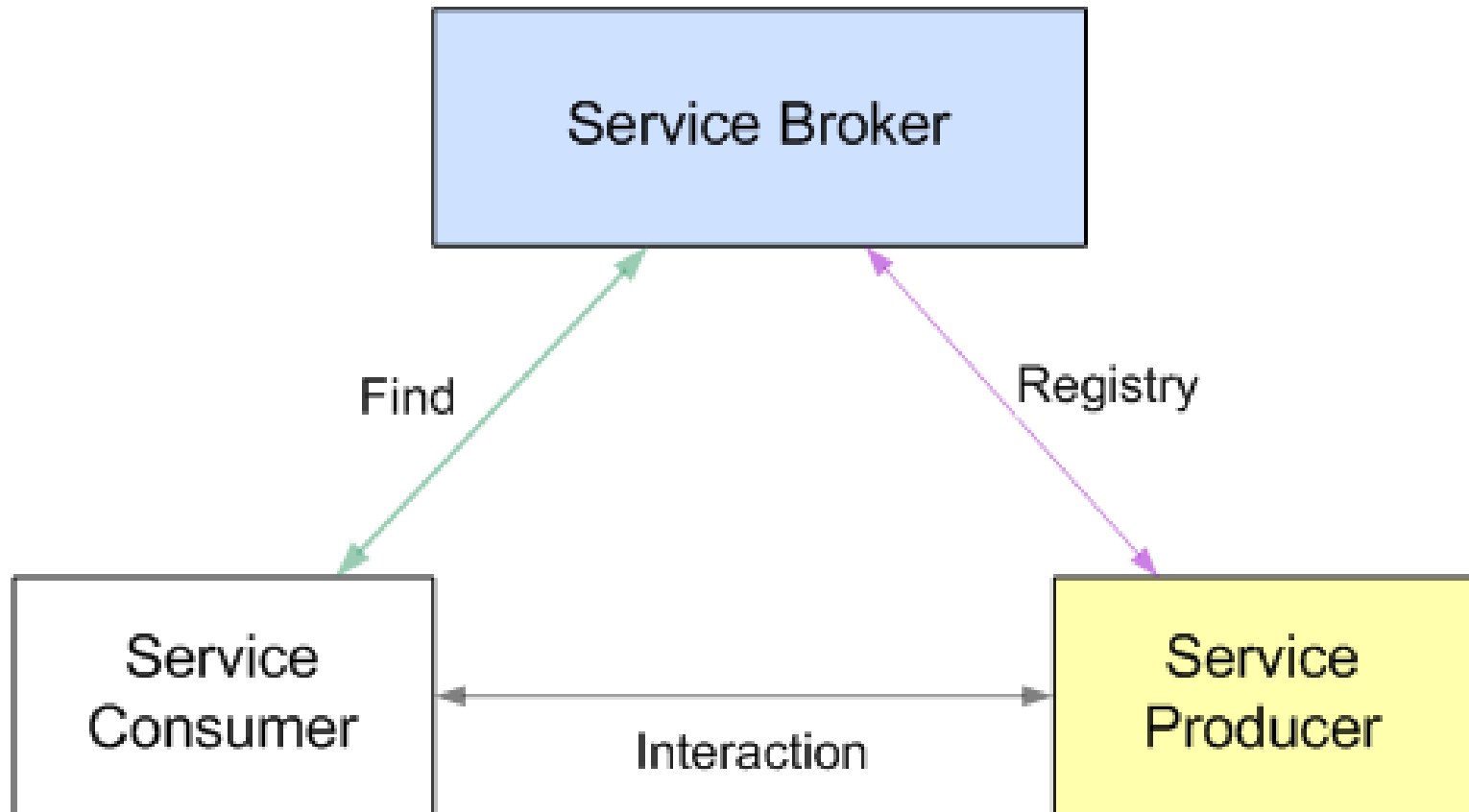
Examples of complex dynamic objects



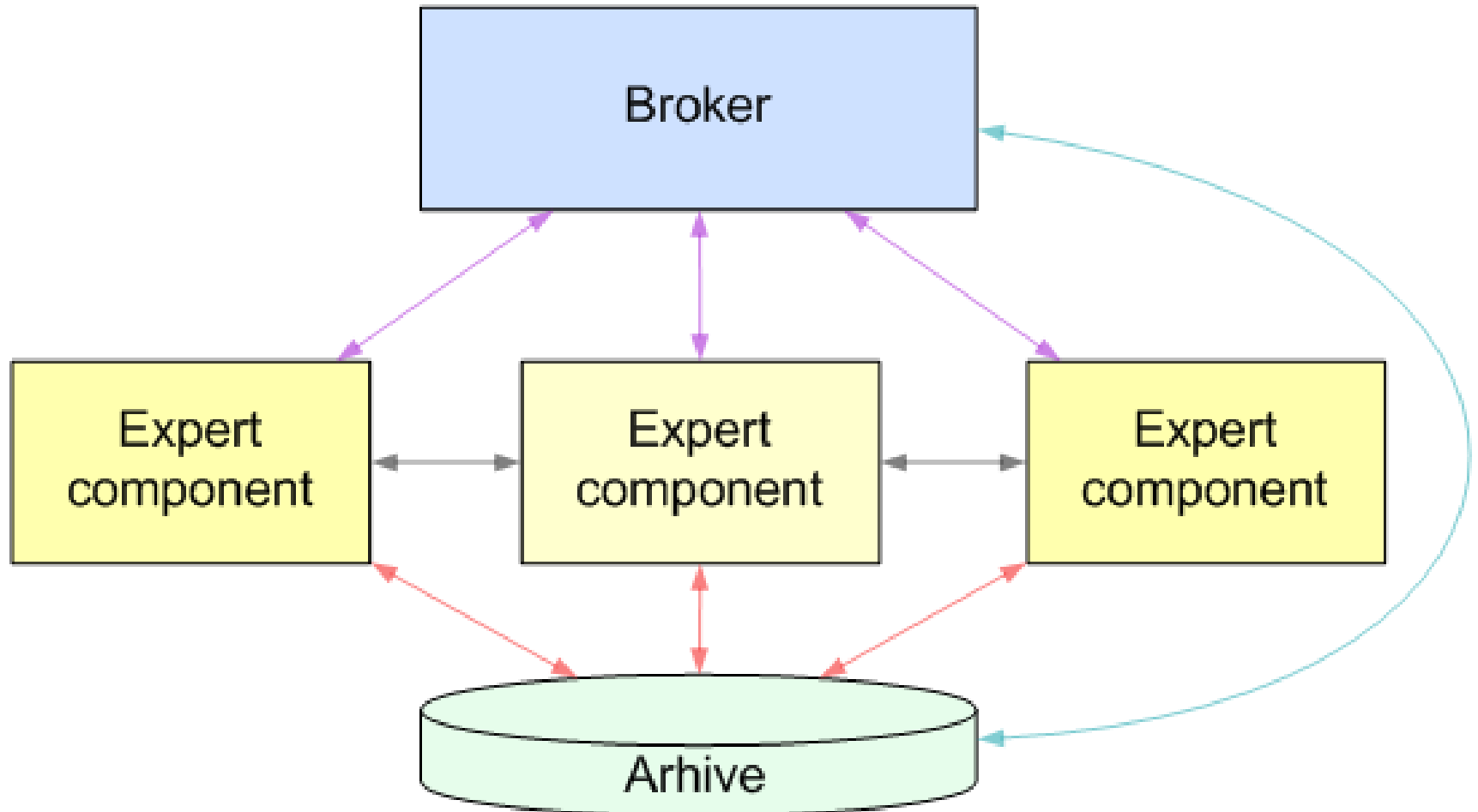
Architecture solutions

	Advantages	Disadvantages
Centralized system	high operating speed	high costs high centralization development complexity low scalability
Distributed system	reduced development costs simplified development decentralization high scalability	reduced operating speed communication problem

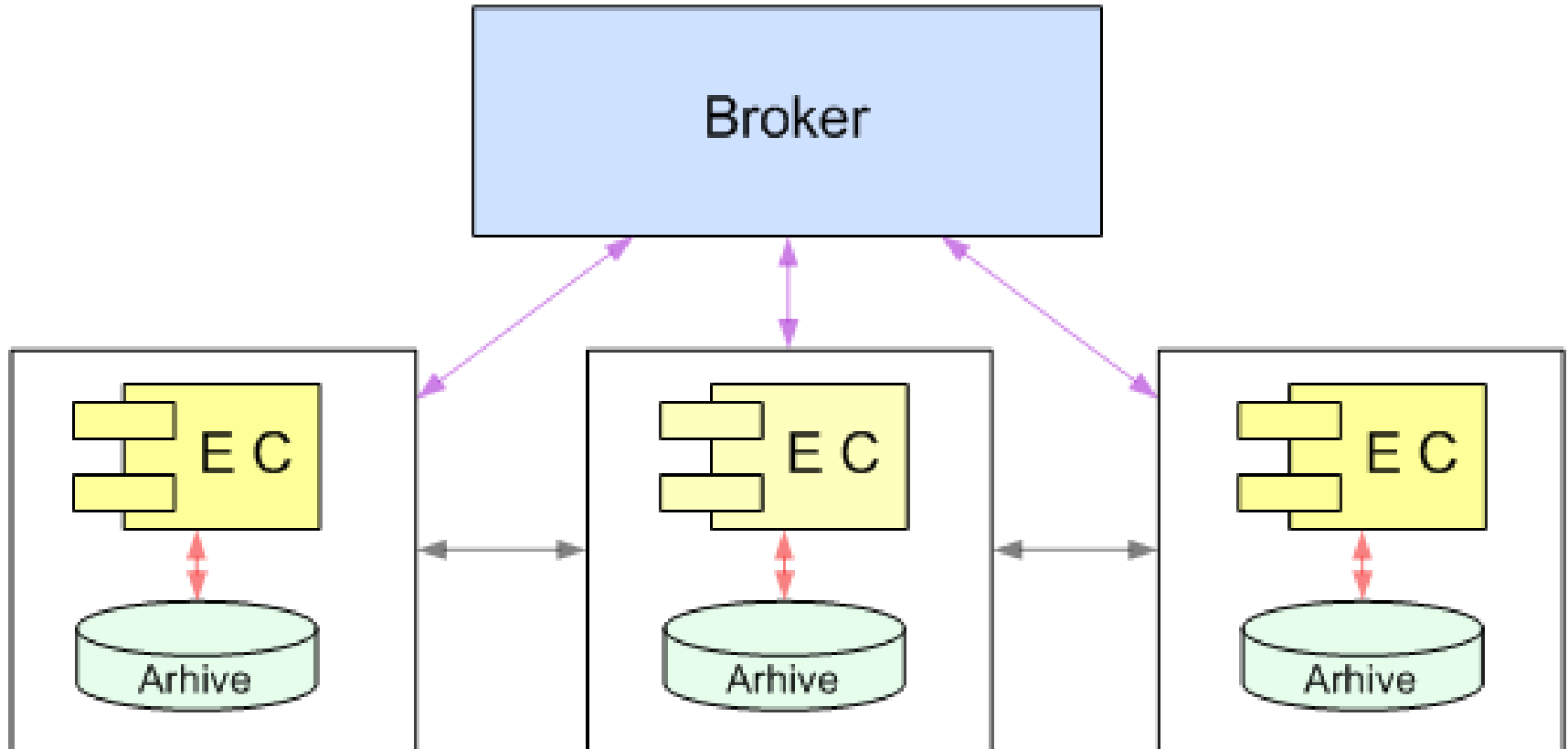
Service-oriented architecture



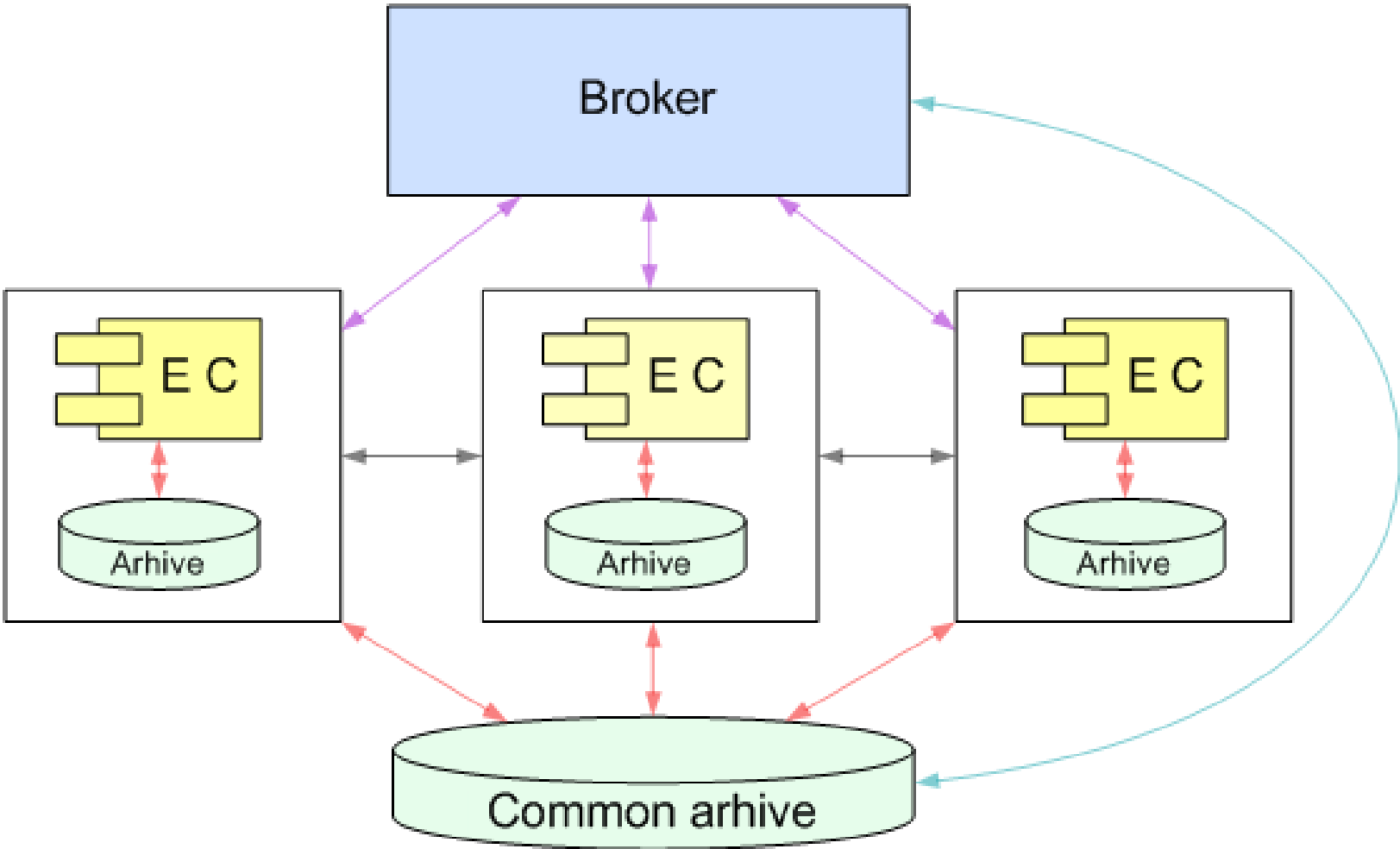
Distributed intelligent system within the SOA



Distributed archive



Common archive for shared data



Practical example

SOAP Response

```
<?xml version="1.0" encoding="UTF-8"?>
  <S:Envelope xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
    <S:Body>
      <ns2:getRecommendationsResponse xmlns:ns2="http://service/">
        <return>
          <priority>5</priority>
          <text>Be careful with non-adult Mary Pink (id=6)</text>
        </return>
        <return>
          <priority>5</priority>
          <text>Be careful with non-adult Jeff (id=15)</text>
        </return>
        <return>
          <priority>3</priority>
          <text>Fill blank fields in record (id=15)</text>
        </return>
        <return>
          <priority>2</priority>
          <text>Check data source for duplicate records</text>
        </return>
      </ns2:getRecommendationsResponse>
    </S:Body>
  </S:Envelope>
```

Future research directions

- Full implementation of the system
- SOAP and REST efficiency comparison
- Transition to cloud

Thank you!