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

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<thead>
<tr>
<th>Centralized system</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tr>
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<td>high operating speed</td>
<td>high costs</td>
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<td>reduced development costs</td>
<td>high centralization</td>
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<td>simplified development</td>
<td>development complexity</td>
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<td>decentralization</td>
<td>low scalability</td>
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<td>communication problem</td>
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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!