Making Better Architectural Choices
with the Architecture Valuation Framework

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Value of Architecture

Current State

Future State A

Future State B

RTB_A(period, drivers)

RTB_B(...) + Investment_B

RTB_A(...)

RTB_B(...)

Value = ?

RTB = Run-the-Business
Our Need

- Force consideration of options
- Drive meaningful discussions
- Expose “hidden” costs and benefits
- Recognize that tradeoffs are necessary
- Express value consistently whenever architecture options are considered
- Express value in terms that resonate with business
- Inform decisions, not force them
Architecture Valuation Framework

- Three dimensions for categorization
- Each dimension has several attributes
- Each attribute is scored on the scale of 0 to 4, with 4 being most favorable
- No assumptions about relative importance of attributes
- Overarching considerations across all attributes influence scoring
Cost Dimension

- **Implementation Cost**: Estimated cost of implementation, including capital expenditures, and all labor costs throughout the entire implementation lifecycle.
  - **SCORE ESTIMATE RANGE**
    - 0: > $4M
    - 1: $2M - $4M
    - 2: $500K - $1.99M
    - 3: $100K - $499K
    - 4: < $100K

- **Operational Cost**: Estimated cost of running the IT systems once architecture/solution is put in place.
  - **SCORE ESTIMATE RANGE**
    - 0: > $400K
    - 1: $150K - $399K
    - 2: $50K - $149K
    - 3: $5K - $49K
    - 4: <$5K

- **Savings on Future Solutions**: Estimated as the reduction in cost of implementation and deployment of future solutions as a consequence of implementing THIS architecture/solution.
  - **SCORE ESTIMATE RANGE**
    - 0: < -10%
    - 1: -10% - 0%
    - 2: 0% - 20%
    - 3: 20% - 50%
    - 4: > 50%
Pace Dimension

Enabled Speed of Solutions

Time to Benefit

Savings on Future Solutions

Operational Cost

Implementation Cost

Cost

Pace

Architecture Quality

Projected amount of time necessary to begin realizing the benefits of the architecture/solution from inception to deployment.

<table>
<thead>
<tr>
<th>SCORE</th>
<th>TIME RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>&gt; 60 Months</td>
</tr>
<tr>
<td>1</td>
<td>49 - 59 Months</td>
</tr>
<tr>
<td>2</td>
<td>25 - 48 Months</td>
</tr>
<tr>
<td>3</td>
<td>12 - 24 Months</td>
</tr>
<tr>
<td>4</td>
<td>&lt; 12 Months</td>
</tr>
</tbody>
</table>

*illustrative

Projected change in the speed of delivery of future solutions that leverage THIS architecture/solution compared to the current state.

<table>
<thead>
<tr>
<th>SCORE</th>
<th>SCORE TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Significantly Longer Duration of Delivery Time</td>
</tr>
<tr>
<td>1</td>
<td>Longer Duration of Delivery Time</td>
</tr>
<tr>
<td>2</td>
<td>Comparable Duration of Delivery Time</td>
</tr>
<tr>
<td>3</td>
<td>Shorter Duration of Delivery Time</td>
</tr>
<tr>
<td>4</td>
<td>Significantly Shorter Duration of Delivery Time</td>
</tr>
</tbody>
</table>
Architecture Quality Dimension

- Cumulative measure of Manageability, Throughput, and Latency
- Cumulative measure of Maintainability, Scalability, Reusability, and Testability
- Cumulative measure of Downtime, Capacity, Utilization, and Recoverability.

Measure of the ability of the architecture/solution to prevent malicious or accidental actions outside of the designed usage, and to prevent disclosure or loss of information.

<table>
<thead>
<tr>
<th>SCORE</th>
<th>SCORE_TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Very Low</td>
</tr>
<tr>
<td>1</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Comparable</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>4</td>
<td>Very High</td>
</tr>
</tbody>
</table>
General Considerations

- General uncertainty
- Total complexity and transitional complexity
- Inter-component and inter-organization dependencies
- Number of new skills, time to acquire skills, rate of skill obsolescence
- Other considerations

SCORE TERM

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</table>
Visualization of Results

The diagram illustrates the comparison of various factors for three options: Build, Buy, and Rent. The factors are:

- Implementation Cost
- Operational Cost
- Savings on Future Solutions
- Time to Benefit
- Enabled Speed of Solutions
- Performance
- Availability
- Flexibility
- Security

The table below shows the scores for each option:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Build</th>
<th>Buy</th>
<th>Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Cost</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Operational Cost</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Savings on Future Solutions</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Time to Benefit</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Enabled Speed of Solutions</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Performance</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Availability</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Flexibility</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Security</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

The scores are based on a scale from 1 to 4, with higher scores indicating better performance.
Using the Framework

During Target Architecture Definition

- Focus on evaluating architectures of a long-term target state
- Typically larger effort with broad implications
- Valuation steps aided with ATAM/SACAM-like workshops
- Output mandated as a standard artifact
- Output is key to target architecture approval
- Key recipients = business unit leaders + Enterprise Architecture Review Board
Building the Framework

Industry Practices
- ATAM
- CBAM
- SACAM

Previous Architecture Decisions

Previous Architecture Outcomes

Enterprise Practices
- Estimation
- Project Sizing
- Risk Analysis

Culture

Requirements and Scope of Interest

ATAM
CBAM
SACAM

Enterprise Practices

Risk Analysis
Project Sizing
Estimation

Culture

Requirements and Scope of Interest
Key Takeaways

- Frame recommendations as choices rather than imperatives
- Use to influence stakeholder decisions
- Visualize in a way that resonates
- Survey past experiences to define the set of key attributes
- Reuse existing assessment mechanisms to feed the scoring
- Continuous improvement by tracking the factors associated with winning architecture decisions

K.I.S.S. principle
Thank You

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