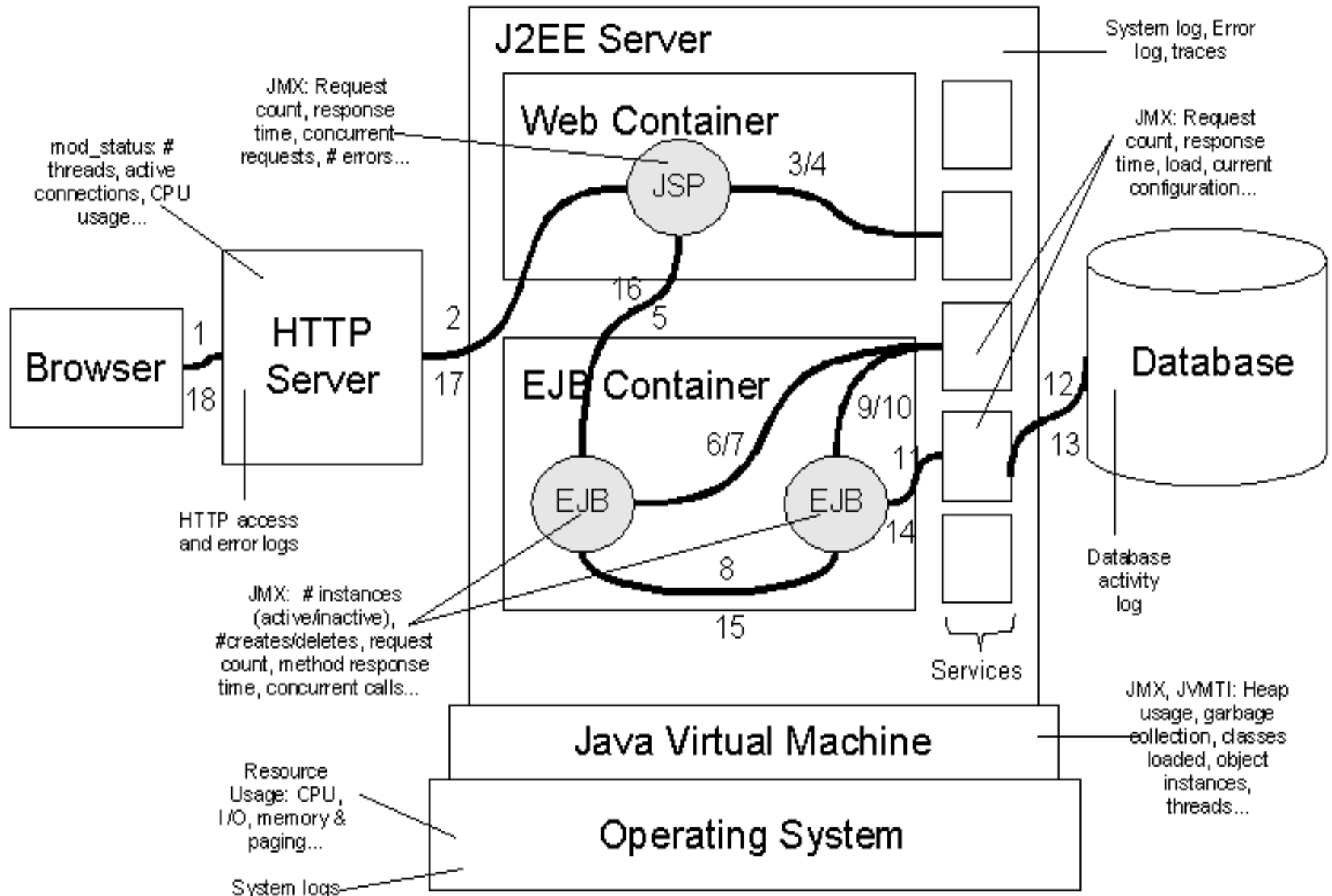


# What Can We Monitor?



# How much does monitoring cost?

- Human: at ~\$100k per admin: ~\$100 billion *p.a.*
- Automated monitoring costs:

Monitoring Level	Mean Service Time (ms)	Std. Error	Overhead
None	7.468	0.001	0.0%
Minimal	7.604	0.001	1.8%
Detailed	10.152	0.009	36.0%
Logged Trace	12.414	0.089	66.0%

# Grand Challenge: Adaptive Monitoring for Problem Determination

- Automatically learn models of normal activity/behaviour from the monitoring data
  - deviations from prediction of these models indicate potential failures
  - Automatically diagnose faulty component based on where anomaly is most significant
- Do so at production-system-acceptable cost
  - Adaptive monitoring

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