

CLAIMS

1. A computer-implemented method, comprising:
determining and storing characteristics of a plurality of cloud vendors;
dividing a workload into a plurality of logical stages;
determining characteristics of each of the plurality of logical stages; and
for each of the plurality of logical stages, assigning the logical stage to one of the plurality of cloud vendors,
based on a comparison of the characteristics of the plurality of cloud vendors to the characteristics of the logical stage.
2. The computer-implemented method of Claim 1, wherein the characteristics of each of the plurality of cloud vendors are determined by analyzing the cloud vendor, the analyzing including running capability and cost application programming interfaces (APIs) to perform a scan of the cloud vendor.
3. The computer-implemented method of Claim 1, wherein the characteristics of each of the plurality of cloud vendors are determined by analyzing the cloud vendor, the analyzing including collecting and parsing one or more public and private security database information to identify one or more of reports, trends, vulnerabilities, security problems, etc. for each of the plurality of cloud vendors.
4. The computer-implemented method of Claim 1, wherein the characteristics of each of the plurality of cloud vendors are determined by analyzing the cloud vendor, the analyzing including parsing one or more fix databases to determine any existing solutions to any existing security problems for one or more of the plurality of cloud vendors.
5. The computer-implemented method of Claim 1, wherein the characteristics of each of the plurality of cloud vendors are determined by analyzing the cloud vendor, the analyzing including estimating one or more viability factors for each of the cloud vendors, based on collected review information for the cloud vendors, where the viability factors are selected from a group including serviceability, a net promoter score (NPS), user reviews, performance benchmarks, and tuning flexibility.
6. The computer-implemented method of Claim 1, wherein for each of the plurality of cloud vendors, the characteristics of the cloud vendor include capabilities of the cloud vendor, a cost of implementing the cloud vendor, a security level implemented by the cloud vendor, and viability factors associated with the cloud vendor.
7. The computer-implemented method of Claim 1, wherein each of the characteristics of the plurality of cloud vendors are compared to one or more predefined thresholds in order to determine a level for each of the characteristics of the plurality of cloud vendors.

8. The computer-implemented method of Claim 1, wherein for each of the plurality of cloud vendors, the characteristics for the cloud vendor include:
- a cyber security characteristic indicating a level of security provided by the cloud vendor during workload implementation, and
 - a cyber resiliency characteristic indicating a level of crash protection, malware protection, and redundant data protection provided by the cloud vendor during workload implementation.
9. The computer-implemented method of Claim 1, wherein the workload includes:
- one or more instances of data to be analyzed and manipulated,
 - one or more computations to be performed, and
 - one or more results to be output.
10. The computer-implemented method of Claim 1, wherein dividing the workload includes parsing the workload to identify points of data input and output within the workload, as well as dependencies associated with input to the workload.
11. The computer-implemented method of Claim 1, wherein source code of the workload is scanned to predict instances of data input and output within the workload.
12. The computer-implemented method of Claim 1, wherein each of the logical stages includes data input that is not dependent on other logical stages within the workload.
13. The computer-implemented method of Claim 1, wherein a complexity of each of the logical stages is determined based on inputs, outputs, and intermediate results within the logical stage.
14. The computer-implemented method of Claim 1, wherein characteristics of each of the logical stages is determined based on a complexity for the logical stage.
15. The computer-implemented method of Claim 1, wherein for each logical stage, the characteristics of the logical stage are compared to the characteristics of each of the plurality of cloud vendors to determine a cloud vendor that is capable of meeting requirements of the logical stage.
16. The computer-implemented method of Claim 1, wherein assigning the logical stage to a cloud vendor includes mapping the logical stage to the cloud vendor so that the cloud vendor receives input required by the logical stage, performs operations required by the logical stage, and outputs data required by the logical stage.

17. The computer-implemented method of Claim 1, further comprising presenting a mapping of each logical stage to the cloud vendors to one or more users, using a graphical user interface (GUI).

18. The computer-implemented method of Claim 1, further comprising adjusting resource allocation within each logical stage based on user priorities.

19. The computer-implemented method of Claim 1, further comprising implementing a life cycle management, including performing data migration between the cloud vendors during an implementation of the workload to ensure data is located at necessary cloud vendors during each task of the workload.

20. A computer program product for implementing workloads in a multi-cloud environment, the computer program product comprising a computer readable storage medium having program instructions embodied therewith, wherein the computer readable storage medium is not a transitory signal per se, the program instructions executable by a processor to cause the processor to perform a method comprising:

determining and storing, by the processor, characteristics of a plurality of cloud vendors;

dividing, by the processor, a workload into a plurality of logical stages;

determining, by the processor, characteristics of each of the plurality of logical stages; and

for each of the plurality of logical stages, assigning, by the processor, the logical stage to one of the plurality of cloud vendors, based on a comparison of the characteristics of the plurality of cloud vendors to the characteristics of the logical stage.

21. The computer program product of Claim 20, wherein the characteristics of each of the plurality of cloud vendors are determined by analyzing the cloud vendor, the analyzing including running capability and cost application programming interfaces (APIs) to perform a scan of the cloud vendor.

22. The computer program product of Claim 20, wherein the characteristics of each of the plurality of cloud vendors are determined by analyzing the cloud vendor, the analyzing including collecting and parsing one or more public and private security database information to identify one or more of reports, trends, vulnerabilities, security problems, etc. for each of the plurality of cloud vendors.

23. A system, comprising:

a processor; and

logic integrated with the processor, executable by the processor, or integrated with and executable by the processor, the logic being configured to:

determine and store characteristics of a plurality of cloud vendors;

divide a workload into a plurality of logical stages;

determine characteristics of each of the plurality of logical stages; and
for each of the plurality of logical stages, assign the logical stage to one of the plurality of cloud vendors,
based on a comparison of the characteristics of the plurality of cloud vendors to the characteristics of the logical stage.

24. A computer-implemented method, comprising:

determining characteristics of a plurality of cloud vendors by analyzing the plurality of cloud vendors, the
analyzing including:

running capability and cost application programming interfaces (APIs) to perform a scan of the plurality of
cloud vendors,

collecting and parsing one or more public and private security database information to identify one or more of
reports, trends, vulnerabilities, security problems, etc. for each of the plurality of cloud vendors, and

parsing one or more fix databases to determine any existing solutions to any existing security problems for
one or more of the plurality of cloud vendors;

dividing a workload into a plurality of logical stages;

determining characteristics of each of the plurality of logical stages; and

for each of the plurality of logical stages, assigning the logical stage to one of the plurality of cloud vendors,
based on a comparison of the characteristics of the plurality of cloud vendors to the characteristics of the logical stage.

25. A computer-implemented method, comprising:

determining and storing characteristics of a plurality of cloud vendors;

dividing a workload into a plurality of logical stages, including:

parsing the workload to identify points of data input and output within the workload, as well as dependencies
associated with input to the workload, and

scanning source code of the workload to predict instances of data input and output within the workload,

wherein each of the logical stages includes data input that is not dependent on other logical stages within the
workload;

determining characteristics of each of the plurality of logical stages; and

for each of the plurality of logical stages, assigning the logical stage to one of the plurality of cloud vendors,
based on a comparison of the characteristics of the plurality of cloud vendors to the characteristics of the logical stage.