

Calendar No. 731

118TH CONGRESS
2D SESSION

S. 2871

[Report No. 118–311]

To advance Federal Government innovation through the implementation and use of multi-cloud computing software technology, and for other purposes.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 20, 2023

Mr. DAINES (for himself, Ms. ROSEN, and Mr. PETERS) introduced the following bill; which was read twice and referred to the Committee on Homeland Security and Governmental Affairs

DECEMBER 19 (legislative day, DECEMBER 16), 2024

Reported by Mr. PETERS, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

A BILL

To advance Federal Government innovation through the implementation and use of multi-cloud computing software technology, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 ~~This Act may be cited as the “Multi-Cloud Innovation~~
5 ~~and Advancement Act of 2023”.~~

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) **AGENCY.**—The term “agency” has the
4 meaning given the term in section 3502 of title 44,
5 United States Code.

6 (2) **CLOUD COMPUTING.**—The term “cloud
7 computing” has the meaning given the term in Spe-
8 cial Publication 800–145 of the National Institute of
9 Standards and Technology, or any successor docu-
10 ment.

11 (3) **COMPTROLLER GENERAL.**—The term
12 “Comptroller General” means the Comptroller Gen-
13 eral of the United States.

14 (4) **DIRECTOR.**—The term “Director” means
15 the Director of the Office of Management and Budg-
16 et.

17 (5) **INFORMATION AND COMMUNICATIONS**
18 **TECHNOLOGY.**—The term “information and commu-
19 nications technology”—

20 (A) has the meaning given the term in
21 subpart 2.101 of the Federal Acquisition Regu-
22 lation, or any successor regulation; and

23 (B) includes associated services.

24 (6) **MULTI-CLOUD TECHNOLOGY.**—The term
25 “multi-cloud technology” means architecture and
26 services that allow for data, application, and pro-

1 gram portability, usability, and interoperability be-
2 tween infrastructure, platforms, and hosted applica-
3 tions of multiple cloud computing vendors and be-
4 tween public, private, and edge cloud environments
5 in a manner that securely delivers operational and
6 management consistency, comprehensive visibility,
7 and resiliency.

8 (7) RELEVANT COMMITTEES OF CONGRESS.—

9 The term “relevant committees of Congress” means
10 the Committee on Homeland Security and Govern-
11 mental Affairs of the Senate and the Committee on
12 Oversight and Accountability of the House of Rep-
13 resentatives.

14 **SEC. 3. USE OF MULTI-CLOUD TECHNOLOGY.**

15 (a) IN GENERAL.—Not later than 1 year after the
16 date of enactment of this Act, the Director, in consultation
17 with the Administrator of General Services, the Director
18 of the National Institute of Standards and Technology,
19 the Secretary of Homeland Security, the Administrator of
20 the United States Digital Service, and the Administrator
21 of the Office of Electronic Government, shall—

22 (1) identify and evaluate any impediments to
23 the adoption of multi-cloud technology by agencies;

24 (2) identify best practices for how agencies can
25 implement multi-cloud technology to allow for data

1 portability and interoperability across multiple cloud
2 computing vendors;

3 (3) evaluate the adoption by agencies of cyber-
4 security frameworks to support multi-cloud tech-
5 nology; and

6 (4) develop written guidance for agencies based
7 on the results of the identification described in para-
8 graph (2) that—

9 (A) describes how agencies should use
10 multi-cloud technology to allow for applications,
11 data, and programs to be portable and inter-
12 operable between public, private, and edge cloud
13 environments; and

14 (B) outlines a roadmap for the implemen-
15 tation of multi-cloud technology across agencies
16 not later than January 1, 2025.

17 (b) BRIEFING.—Not later than 1 year after the date
18 of enactment of this Act, the Director shall submit to the
19 relevant committees of Congress—

20 (1) a copy of the written guidance developed
21 under subsection (a)(4);

22 (2) a briefing on the implementation of multi-
23 cloud technology by agencies; and

1 (3) any recommendations relating to the expansion or extension of the implementation described in
2 paragraph (2).

4 **SEC. 4. WORKFORCE DEVELOPMENT STUDY AND TECHNICAL CAPABILITIES ASSESSMENT.**

6 (a) **IN GENERAL.**—Not later than 1 year after the
7 date of enactment of this Act, the Comptroller General
8 shall submit to Congress and make publicly available a
9 report that—

10 (1) assesses the state of the digital skills and
11 expertise gap within the Federal workforce relating
12 to information and communications technology, with
13 particular attention to the skills and expertise gap
14 relating to cloud computing and multi-cloud technology;
15

16 (2) assesses the capability of the Federal acquisition workforce to effectively research, solicit, evaluate, acquire, and manage multi-cloud technology from vendors, with particular attention to flexible or modular contracting practices that facilitate the inherently complex and dynamic nature of multi-cloud technology procurement;

23 (3) estimates any costs associated with additional Federal workforce training as a result of the increased adoption of multi-cloud technologies; and
24
25

1 (4) includes any recommendations to address
 2 any gap identified as a result of the assessment de-
 3 scribed in paragraph (1) relating to—

4 (A) Federal workforce development activi-
 5 ties, including training, certifications, staffing
 6 levels, and partnerships; and

7 (B) policies and hiring practices for agen-
 8 cies.

9 (b) TECHNICAL ASSESSMENT.—Not later than 1 year
 10 after the date of enactment of this Act, the Comptroller
 11 General shall submit to Congress and make publicly avail-
 12 able a report that—

13 (1) assesses the technical capabilities of existing
 14 agency networks to support multi-cloud technology;

15 (2) evaluates any technical capability impedi-
 16 ments of agencies that delay the adoption of multi-
 17 cloud technology; and

18 (3) includes any recommendations relating to
 19 policies and best practices for agencies to address
 20 any impediments identified as a result of the assess-
 21 ment described in paragraph (1) and the evaluation
 22 described in paragraph (2).

23 **SEC. 5. REPORT TO CONGRESS.**

24 Not later than 2 years after the date of enactment
 25 of this Act, the Comptroller General shall submit to Con-

1 gress and make publicly available a report assessing how
2 agencies have implemented the guidance developed under
3 section 3(a)(4) to deploy and secure multi-cloud tech-
4 nology architecture that includes multiple cloud computing
5 software vendors.

6 **SECTION 1. SHORT TITLE.**

7 *This Act may be cited as the “Multi-Cloud Innovation*
8 *and Advancement Act of 2023”.*

9 **SEC. 2. DEFINITIONS.**

10 *In this Act:*

11 (1) *AGENCY.—The term “agency” has the mean-*
12 *ing given the term in section 3502 of title 44, United*
13 *States Code.*

14 (2) *CLOUD COMPUTING.—The term “cloud com-*
15 *puting” has the meaning given the term in Special*
16 *Publication 800–145 of the National Institute of*
17 *Standards and Technology, or any successor docu-*
18 *ment.*

19 (3) *COMPTROLLER GENERAL.—The term “Comp-*
20 *troller General” means the Comptroller General of the*
21 *United States.*

22 (4) *DIRECTOR.—The term “Director” means the*
23 *Director of the Office of Management and Budget.*

1 (5) *INFORMATION AND COMMUNICATIONS TECHNOLOGY.*—*The term “information and communications technology”*—

2
3
4 (A) *has the meaning given the term in sub-*
5 *part 2.101 of the Federal Acquisition Regulation,*
6 *or any successor regulation; and*

7 (B) *includes associated services.*

8 (6) *MULTI-CLOUD TECHNOLOGY.*—*The term*
9 *“multi-cloud technology” has the meaning given the*
10 *term by the Director of the National Institute of*
11 *Standards and Technology pursuant to section 6(a).*

12 (7) *RELEVANT COMMITTEES OF CONGRESS.*—*The*
13 *term “relevant committees of Congress” means the*
14 *Committee on Homeland Security and Governmental*
15 *Affairs of the Senate and the Committee on Oversight*
16 *and Accountability of the House of Representatives.*

17 **SEC. 3. STUDY AND GUIDELINES FOR VOLUNTARY AGENCY**
18 **USE OF MULTI-CLOUD TECHNOLOGY.**

19 (a) *IN GENERAL.*—*Not later than 1 year after the date*
20 *of enactment of this Act, the Director shall—*

21 (1) *study the use of multi-cloud technology by*
22 *agencies;*

23 (2) *identify the extent to which agencies use*
24 *multi-cloud computing technology;*

1 (3) identify, among agencies that use multi-cloud
2 technology—

3 (A) best practices, including for security,
4 portability, and interoperability across multiple
5 cloud computing vendors;

6 (B) best cybersecurity practices and frame-
7 works, including cloud native security solutions,
8 to support multi-cloud technology;

9 (C) lessons learned from adoption of multi-
10 cloud technologies by agencies; and

11 (D) use cases of multi-cloud technology by
12 agencies;

13 (4) develop a cost-benefit analysis of agencies
14 transitioning to multi-cloud technology compared to
15 the existing cloud computing systems of those agen-
16 cies; and

17 (5) provide to the relevant committees of Con-
18 gress a briefing on the plans and methodologies of the
19 Director for carrying out this subsection and sub-
20 section (b).

21 (b) *BEST PRACTICES*.—Not later than 1 year after the
22 date of the completion of the study required under sub-
23 section (a)(1), the Director shall compile and make avail-
24 able to agencies the information identified under subsection

1 (a)(3) to assist agencies that consider adopting or choose
2 to adopt multi-cloud technology.

3 (c) *BRIEFING.*—Not later than 540 days after the date
4 of enactment of this Act, the Director shall submit to the
5 relevant committees of Congress the findings of the study
6 required under subsection (a)(1), including any legislative
7 recommendations to ensure the safe and secure voluntary
8 adoption of multi-cloud technology by agencies.

9 **SEC. 4. WORKFORCE DEVELOPMENT STUDY AND TECH-**
10 **NICAL CAPABILITIES ASSESSMENT.**

11 Not later than 1 year after the date of enactment of
12 this Act, the Comptroller General shall submit to Congress
13 and make publicly available a report that—

14 (1) assesses the state of the digital skills and ex-
15 pertise gap within the Federal workforce relating to
16 information and communications technology, includ-
17 ing cloud computing and multi-cloud technology;

18 (2) assesses—

19 (A) the capability of the Federal acquisition
20 workforce to effectively research, solicit, evaluate,
21 acquire, and securely procure and manage
22 multi-cloud technology from vendors, with par-
23 ticular attention to flexible or modular con-
24 tracting practices that facilitate the inherently

1 *complex and dynamic nature of multi-cloud*
2 *technology procurement; and*

3 *(B) any gaps in the Federal acquisition*
4 *workforce with respect to the tasks described in*
5 *subparagraph (A);*

6 *(3) assesses the capability of the Federal infor-*
7 *mation technology workforce to effectively architect,*
8 *deploy, manage, and secure multi-cloud technology*
9 *from vendors, with particular attention to technical*
10 *practices that focus on interoperability, monitoring,*
11 *and optimization of the multi-cloud environment;*

12 *(4) estimates any costs associated with addi-*
13 *tional Federal workforce training as a result of the*
14 *increased adoption of multi-cloud technologies; and*

15 *(5) includes any recommendations to address*
16 *any gap identified as a result of the assessment de-*
17 *scribed in paragraph (1) relating to—*

18 *(A) Federal workforce development activi-*
19 *ties, including training, certifications, staffing*
20 *levels, and partnerships; and*

21 *(B) policies and hiring practices for agen-*
22 *cies.*

1 **SEC. 5. REPORT TO CONGRESS.**

2 *Not later than 2 years after the date of enactment of*
3 *this Act, the Comptroller General shall submit to Congress*
4 *and make publicly available a report assessing—*

5 *(1) the state of cloud technology adoption within*
6 *the Federal Government as of the date of enactment*
7 *of this Act;*

8 *(2) whether and to what extent the use of multi-*
9 *cloud technology has resulted in flexibility, cost sav-*
10 *ings, and reduced cybersecurity risk;*

11 *(3) circumstances that are favorable or not favor-*
12 *able for adoption by agencies of multi-cloud tech-*
13 *nology;*

14 *(4) the technical and other capabilities necessary*
15 *for the voluntary adoption of multi-cloud technology*
16 *by agencies;*

17 *(5) cybersecurity risks and benefits specific to*
18 *multi-cloud technology, including best practices for*
19 *agencies or entities looking to use multi-cloud tech-*
20 *nology to mitigate identified risks; and*

21 *(6) a cost-benefit analysis of agencies*
22 *transitioning to multi-cloud technology compared to*
23 *the existing cloud computing systems of those agen-*
24 *cies.*

1 **SEC. 6. MULTI-CLOUD TECHNOLOGY DEFINITION.**

2 (a) *IN GENERAL.*—Not later than 120 days after the
3 date of enactment of this Act, the Director of the National
4 Institute of Standards and Technology shall publish a defi-
5 nition of “multi-cloud technology” for the purpose of this
6 Act.

7 (b) *CONSIDERATIONS.*—In publishing the definition
8 required under subsection (a), the Director of the National
9 Institute of Standards and Technology shall consider input
10 from stakeholders and industry leaders.

11 (c) *REVIEW; UPDATES.*—The Director of the National
12 Institute of Standards and Technology shall periodically re-
13 view and, if necessary, update and republish the definition
14 required under subsection (a) to reflect advancements in
15 technology or industry practices.

16 **SEC. 7. NO ADDITIONAL FUNDS.**

17 No additional amounts are authorized to be appro-
18 priated to carry out this Act.

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