

112TH CONGRESS
2D SESSION

H. R. 6278

To optimize Federal data center usage and efficiency.

IN THE HOUSE OF REPRESENTATIVES

AUGUST 2, 2012

Mr. CONNOLLY of Virginia introduced the following bill; which was referred
to the Committee on Oversight and Government Reform

A BILL

To optimize Federal data center usage and efficiency.

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; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the
5 “Data Center Optimization Act”.

6 (b) TABLE OF CONTENTS.—The table of contents for
7 this Act is as follows:

Sec. 1. Short title; table of contents.

Sec. 2. Purpose.

Sec. 3. Definitions.

Sec. 4. Federal Data Center Optimization Initiative.

Sec. 5. Performance requirements related to data center consolidation.

Sec. 6. Disposition of savings from data consolidation.

Sec. 7. Reporting requirements to Congress and the Federal Chief Information
Officer.

Sec. 8. Agencies included in the Federal Data Center Optimization Initiative.

1 **SEC. 2. PURPOSE.**

2 The purpose of this Act is to optimize Federal data
3 center usage and efficiency.

4 **SEC. 3. DEFINITIONS.**

5 In this Act:

6 (1) **FEDERAL DATA CENTER OPTIMIZATION INITIATIVE.**—The term “Federal Data Center Opti-
7 mization Initiative” means the initiative developed and
8 implemented pursuant to section 4.

9 (2) **COVERED AGENCY.**—The term “covered
10 agency” means any agency included in the Federal
11 Data Center Optimization Initiative pursuant to sec-
12 tion 8.

13 (3) **FEDERAL CHIEF INFORMATION OFFICER.**—
14 The term “Federal Chief Information Officer”
15 means the chief information officer of the Office of
16 Management and Budget.

17 (4) **DATA CENTER.**—The term “data center”
18 means any room that is devoted to data processing
19 servers, including server closets (typically less than
20 200 square feet) and server rooms (typically less
21 than 500 square feet), within a conventional build-
22 ing, and larger spaces in any building dedicated to
23 housing servers, storage devices, and network equip-
24 ment, but the term does not include facilities that
25 are exclusively devoted to communications and net-
26

1 work equipment (such as telephone exchanges) and
2 telecommunications rooms and closets.

3 (5) DESKTOP VIRTUALIZATION.—The term
4 “desktop virtualization” means any technology that
5 creates a virtual version of an information tech-
6 nology device or resource and is used to separate a
7 computer desktop environment from the physical
8 computer.

9 (6) VIRTUALIZATION.—The term “virtualiza-
10 tion” means the simulation of the software or hard-
11 ware, or both, upon which other software runs which
12 allows servers to be consolidated in ratios of 5:1 up
13 to 25:1. The use of virtualization technology is both
14 an instrumental and necessary component to achieve
15 increases in server utilization rates. This simulated
16 environment is called a virtual machine (VM).

17 (7) FEDERAL DATA CENTER.—The term “Fed-
18 eral data center” means any data center of a cov-
19 ered agency used or operated by a covered agency,
20 by a contractor of a covered agency, or by another
21 organization on behalf of a covered agency.

22 (8) POWER UTILIZATION EFFECTIVENESS.—
23 The term “power utilization effectiveness” means
24 the ratio obtained by dividing the total amount of
25 electricity and other power consumed in running a

1 data center by the power consumed by the informa-
2 tion and communications technology in the data cen-
3 ter.

4 (9) SERVER UTILIZATION.—The term “server
5 utilization” refers to the activity level of a server rel-
6 ative to its maximum activity level during peak
7 hours of operation, expressed as a percentage.

8 (10) CLOUD COMPUTING.—The term “cloud
9 computing”, as defined by National Institute of
10 Standards and Technology, means a model for ena-
11 bling ubiquitous, convenient, on-demand network ac-
12 cess to a shared pool of configurable computing re-
13 sources (such as networks, servers, storage, applica-
14 tions, and services) that can be rapidly provisioned
15 and released with minimal management effort or
16 service provider interaction. The model is composed
17 of the following:

18 (A) Five essential characteristics, which
19 are on-demand service, broad network access,
20 resource pooling, rapid elasticity, and measured
21 service.

22 (B) Three service models, which are soft-
23 ware as a service, platform as a service, and in-
24 frastructure as a service.

1 (C) Four deployment models, which are
2 private cloud, community cloud, public cloud,
3 and hybrid cloud.

4 **SEC. 4. FEDERAL DATA CENTER OPTIMIZATION INITIATIVE.**

5 (a) REQUIREMENT FOR INITIATIVE.—The Federal
6 Chief Information Officer, in consultation with the chief
7 information officers of covered agencies, shall develop and
8 implement an initiative to optimize the usage and effi-
9 ciency of Federal data centers by meeting the require-
10 ments of this Act and taking additional measures, as ap-
11 propriate.

12 (b) REQUIREMENT FOR PLAN.—Within 6 months
13 after the date of the enactment of this Act, the Federal
14 Chief Information Officer, in consultation with the chief
15 information officers of covered agencies, shall develop and
16 submit to Congress a consolidated plan for implementation
17 of the initiative by each agency. The agency consolidation
18 plans must include descriptions of how agencies will use
19 reductions in floor space, energy use, infrastructure,
20 equipment, applications, personnel, increases in multi-
21 organizational use, and other appropriate methods to meet
22 the requirements of the initiative. The agency consolida-
23 tion plans must also be included in, and consistent with,
24 the President’s annual budget submission materials, in-

1 cluding the detailed budget justifications and appropria-
2 tions estimates.

3 **SEC. 5. PERFORMANCE REQUIREMENTS RELATED TO DATA**

4 **CENTER CONSOLIDATION.**

5 (a) SERVER UTILIZATION.—

6 (1) 75 PERCENT.—Each covered agency shall
7 meet or exceed 75 percent average server utilization
8 in agency data centers by 2015.

9 (2) METHODS TO ACHIEVE REQUIREMENT.—

10 Each covered agency shall use the following methods
11 to meet the requirement in paragraph (1):

12 (A) The closing of existing data centers
13 that have an average server utilization of under
14 65 percent. If the agency fails to close data cen-
15 ters with a utilization of under 65 percent, the
16 agency must provide a detailed explanation as
17 to why this data center should remain in use as
18 part of the submitted plan. The Federal Chief
19 Information Officer will include an assessment
20 of the agency explanation in the annual report
21 to Congress.

22 (B) The use of virtualization technology to
23 achieve the consolidation of services within ex-
24 isting data centers to increase server utilization
25 rates.

1 (C) Shifting to a “cloud first” policy,
2 under which agencies shall use one or more of
3 the following:

4 (i) Use commercial cloud technologies
5 where feasible and cost effective by migrat-
6 ing agency data and government-provided
7 services from agency owned and operated
8 data centers to cloud computing services
9 generally available with the private sector.

10 (ii) Launch private government cloud
11 services within an agency, or share re-
12 sources across several agencies where more
13 feasible and cost-effective in comparison to
14 use of public cloud services.

15 (iii) Use regional clouds with State
16 and local governments where appropriate.

17 (D) The consolidation of data centers
18 across agencies.

19 (E) Other methods identified by chief in-
20 formation offices of the agencies and the Fed-
21 eral Chief Information Officer.

22 (b) POWER UTILIZATION EFFECTIVENESS.—Each
23 covered agency shall achieve an average power utilization
24 effectiveness for its data centers of 1.2 or less by 2015.

25 (c) POWER METERING.—

1 (1) This Act authorizes a pilot program be es-
2 tablished at the Department of Defense aimed at re-
3 searching innovative ways to achieve full metering.

4 (2) The covered agency must establish other
5 methods to obtain accurate data to measure power
6 utilization effectiveness subject to the approval of
7 the Federal Chief Information Officer.

8 (d) DESKTOP VIRTUALIZATION.—Each covered agen-
9 cy shall use desktop virtualization with existing
10 workstations to the extent that is practicable, to save
11 equipment replacement costs and improve the security
12 posture of endpoint devices by migrating end user data
13 from the device into the private cloud of the agency.

14 (e) EFFICIENT INFORMATION TECHNOLOGY.—Each
15 covered agency shall give high priority to replacement of
16 data center servers and other information technology
17 equipment with more efficient equipment, using a baseline
18 including the physical to virtual consolidation ratio and
19 other criteria developed by the Federal Chief Information
20 Officer in consultation with agency chief information offi-
21 cers.

22 **SEC. 6. DISPOSITION OF SAVINGS FROM DATA CONSOLIDA-**
23 **TION.**

24 (a) REQUIREMENT TO TRACK COSTS.—

1 (1) IN GENERAL.—Each covered agency shall
2 track costs resulting from implementation of the
3 Federal Data Center Optimization Initiative within
4 the agency and submit a report on those costs annu-
5 ally to the Federal Chief Information Officer. Cov-
6 ered agencies shall determine the net costs from
7 data consolidation on an annual basis.

8 (2) FACTORS.—In calculating net costs each
9 year under paragraph (1), a covered agency shall
10 use the following factors:

11 (A) Energy costs.

12 (B) Personnel costs.

13 (C) Real Estate costs.

14 (D) Capital expense costs.

15 (E) Operating system, database, and other
16 software license expense costs.

17 (F) Other appropriate costs, as determined
18 by the agency in consultation with the Federal
19 Chief Information Officer.

20 (b) REQUIREMENT TO TRACK SAVINGS.—

21 (1) IN GENERAL.—Each covered agency shall
22 track savings resulting from implementation of the
23 Federal Data Center Optimization Initiative within
24 the agency and submit a report on those savings an-
25 nually to the Federal Chief Information Officer.

1 Covered agencies shall determine the net savings
2 from data consolidation on an annual basis.

3 (2) FACTORS.—In calculating net savings each
4 year under paragraph (1), a covered agency shall
5 use the following factors:

6 (A) Energy savings.

7 (B) Personnel savings.

8 (C) Real Estate savings.

9 (D) Capital expense savings.

10 (E) Operating system, database and other
11 software license expense savings.

12 (F) Other appropriate savings, as deter-
13 mined by the agency in consultation with the
14 Federal Chief Information Officer.

15 (c) COST EFFECTIVE MEASURES.—Covered agencies
16 shall use the most cost effective measures to implement
17 the Federal Data Center Optimization Initiative.

18 (d) USE OF SAVINGS.—Any savings resulting from
19 implementation of the Federal Data Center Optimization
20 Initiative within a covered agency shall be used for the
21 following purposes:

22 (1) To offset the costs of implementing the Ini-
23 tiative within the agency.

24 (2) To further enhance information technology
25 capabilities and services within the agency.

1 (e) COMPTROLLER GENERAL REPORT.—Not later
2 than three months after the date of the enactment of this
3 Act, the Comptroller General of the United States shall
4 examine methods for calculating savings from the Initia-
5 tive and using them for the purposes identified in sub-
6 section (c), including establishment and use of a special
7 revolving fund that supports data centers and server opti-
8 mization, and shall submit to the Federal Chief Informa-
9 tion Officer and Congress a report on the Comptroller
10 General’s findings and recommendations. The Federal
11 Chief Information Officer shall take those findings and
12 recommendations into account in developing the plan
13 under section 4(b).

14 **SEC. 7. REPORTING REQUIREMENTS TO CONGRESS AND**
15 **THE FEDERAL CHIEF INFORMATION OFFI-**
16 **CER.**

17 (a) AGENCY REQUIREMENT TO REPORT TO CIO.—
18 Each year, each covered agency shall submit to the Fed-
19 eral Chief Information Officer a report on the implementa-
20 tion of the Federal Data Center Consolidation Initiative.
21 The report shall include an update of the agency’s plan
22 for implementing the Initiative.

23 (b) FEDERAL CHIEF INFORMATION OFFICER RE-
24 QUIREMENT TO REPORT TO CONGRESS.—Each year, the
25 Federal Chief Information Officer shall submit to the

1 Committee on Science, Space, and Technology and the
2 Committee on Oversight and Government Reform of the
3 House of Representatives and the Committee on Home-
4 land Security and Governmental Affairs of the Senate a
5 consolidated report that assesses agency progress in car-
6 rying out the Federal Data Center Consolidation Initiative
7 and updates the plan under section 4(b). The report may
8 be included as part of the annual report required under
9 section 3606 of title 44, United States Code. This report
10 may also be included in the agency budget submissions
11 to the Office of Management and Budget.

12 **SEC. 8. AGENCIES INCLUDED IN THE FEDERAL DATA CEN-**
13 **TER OPTIMIZATION INITIATIVE.**

14 The following agencies shall be covered by the Fed-
15 eral Data Center Optimization Initiative:

16 (1) **CURRENT AGENCIES.**—Each agency de-
17 scribed in section 901(b) of title 31, United States
18 Code.

19 (2) **ADDITIONAL AGENCIES.**—Such other addi-
20 tional agencies as the Federal Chief Information Of-
21 ficer determines appropriate, after examining wheth-
22 er additional agencies should be covered by the Ini-
23 tiative and including the results of such examination

- 1 in the plan under section 4(b) and updates under
- 2 section 7.

