Case Study Saving Obamacare

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Activity Summary

Your mission is to analyse the case study of the troubled project: HealthCare.gov and determine if it could have been saved by applying software engineering disciplines.

Tasks:

a) Review the following case study material.
b) Devise a framework for analysing the HealthCare.gov project.
c) Identify the causes of the HealthCare.gov failure.
d) Identify the software engineering disciplines relevant to these causal factors.
e) In the context of these disciplines propose courses of action that could have averted the failure.

Supporting information and additional resources are referenced in section *11. References*.

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1. Introduction

In 2010 the U.S. Government legislated major changes to its health care system. Championed by President Barack Obama, the new system became known as a Obamacare. The goal of Obamacare is to bring insurance coverage to 34 million additional Americans.

Critical to the rollout of the new health care program was a custom developed website: HealthCare.gov (also referred to as the Federal Exchange). The mission of this website was to provide a single point of access to the health insurance market for individuals.

It was generally agreed that HealthCare.gov failed comprehensively on deployment.

2. Project Overview

HealthCare.gov is a health care exchange website allowing seekers of health care insurance to comparison shop between different health insurance options within their state of the U.S.A. It is an instrument of the Patient Protection and Affordable Care Act, commonly called "Obamacare" - signed into law by President Barack Obama on March 23, 2010. Obamacare's goal is to give more Americans access to affordable health insurance and to reduce the growth in health care spending in the U.S.A. Americans had until December 23, 2013 to sign up for health care insurance cover that would begin in January 2014. To meet these commitments HealthCare.gov was scheduled to go-live 1 October 2013.

Figure 1. "Oh dear!" HHS Secretary Kathleen Sebelius takes the heat

The website was developed by the U.S. government department that administers the Medicare program: the Centers for Medicare & Medicaid Services (CMS), a U.S. federal government agency within the United States Department of Health and Human Services (HHS).

HealthCare.gov is one of the most complex pieces of software ever created for the U.S. government. It went live on 1 October 2013 and has since been plagued by problems.

Responding to complaints about the website President Obama expressed his dismay over the frustration experienced by 98 percent of the first 20 million visitors to the site. In the first 10 days the site received 14.6 million unique visits. Government officials blamed the persistent glitches on the overwhelming crush of users. Obama said, "There's no sugarcoating it. The website has been

too slow. People have been getting stuck during the application process. And I think it's fair to say that nobody is more frustrated by that than I am."

The poor performance has led the Obama administration to press for fixes and urge Americans seeking insurance under the health care law to apply over the phone, in person or by mail. It also has led to recriminations from congressional Republicans who are embarking on a series of hearings across several committees seeking answers about who was making decisions regarding the architecture and the design of the site and when CMS officials or the White House were informed about the serious defects encountered in testing.

3. The Developer

CMS assumed ultimate responsibility for the end-to-end performance of HealthCare.gov.

CMS selected CGI Federal as the lead software developer. CGI was to develop the critical Federally Facilitated Marketplace (FFM) system component. Refer to section *4. System Description* for details.

In response to damning criticism by CMS and multiple U.S. Senate oversight committees, a CGI Senior Vice President, Cheryl Campbell offered following defence [10]:

CGI is widely recognized by independent parties for its expertise in IT systems and software design, such as certification of the CGI Federal team delivering the FFM by Carnegie Mellon's Software Engineering Institute—the leading software certification body—as having the highest Capability Maturity Model Integration rating: 5 out of 5. This reflects CGI Federal's rigorous software development processes and commitment to continuous process improvements.

In its entirety, HealthCare.gov was built by 55 contractors (CGI and 54 other organisations). CMS retained responsibility for systems integration while end-to-end testing was conducted by Quality Software Services Inc. (QSSI). Table 1 identifies the high value contracts.

Table 1. HealthCare.gov developers by largest contractor through March 31, 2013

Contractor	Examples of activities	Committed (dollars)
CGI Federal Inc	FFE information technology and healthcare.gov	87,997,938
Quality Software Services Inc	Data hub	55,098,237
Booz Allen Hamilton	Enrollment and eligibility planning and state grant technical assistance	37,737,550
National Government Services Inc	Consumer call center and Small Business Health Options Program (SHOP) premium aggregations	31,590,846
The Mitre Corporation	Project management and Information technology security	22,028,672
Logistics Management Institute	Health plan management, rate analysis, and benefit package review	19,107,667
DEDE Inc DBA Genova Technology	Information technology	16,026,915
Terremark Federal Group	Cloud computing services	15,539,713
IDL Solutions	Enterprise data and design support	9,342,512
Navigant Consulting Inc	Outreach and collection activities	8,949,560

Source: http://www.gao.gov/assets/660/655291.pdf, p33

4. System Description

4.1. Overview

The HealthCare.gov architecture has the following major components(refer Figure 2):

1. A dynamic website and transaction processing application called the Federally Facilitated Marketplace (FFM)
2. A Data Services Hub
3. A set of distributed services comprising the new and legacy systems of many health insurance companies and government agencies.

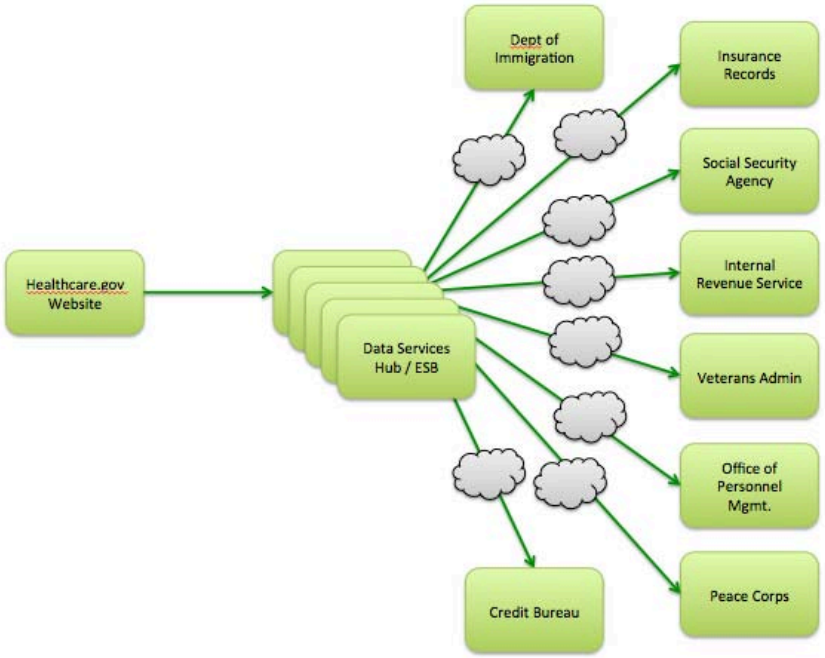
4.2. Federally Facilitated Marketplace

The FFM is a combination customer facing website and complex transaction processor that must simultaneously help millions of Americans determine their eligibility for insurance and federal subsidies. It provides a web-based marketplace that helps people shop for health plans and enroll in their plan of choice.

The FFM must interact in real time with:

1. Systems developed by other contractors (including in the area of enterprise identity management)
2. Existing federal agency databases from the Internal Revenue Service, the Social Security Administration, and the Department of Homeland Security and
3. The on-line services of more than 170 insurance carriers qualified to do business in the 36 states where the FFM operates.

Figure 2. HealthCare.gov logical system architecture [11]



4.3. Data Services Hub

The Data Services Hub is a platform which allows health insurance marketplaces to immediately validate information provided by applicants against information maintained in existing federal databases including the Social Security Administration, Department of Homeland Security,

Department of Defense, Department of Veterans Affairs, the Internal Revenue Service, the Center of Medicare and Medicaid Services and the Office of Personnel Management.

The Hub is essentially a sophisticated switch and mediator. Instead of storing redundant copies of user information such as citizenship, income and health insurance data provided by the applicant (or already present in discrete federal databases), it provides a conduit to existing federal data stores. As such it assumes the classical role of enterprise service bus performing message routing, protocol conversion, data transformation, security checks and transaction management.

Using the Hub, the health insurance marketplaces can validate the information provided against existing databases and report back to the applicant whether his or her attested information matches existing government data. It then facilitates enrollment in the health care plan of choice.

Figure 3 describes the user's interaction with the system and the problems encountered.

4.4. Distributed Services

The service organisations: insurance companies, government departments and credit agencies, provide one or more services through published interfaces (called application programming interfaces). Software was developed to interface existing systems with the Data Hub.

5. Project Description

5.1. Overview

The FFM was developed by CGI, the Data Services Hub by Quality Software Services Inc and various web services by 53 other contractors working separately. CMS assumed the role of systems integrator - the ultimate responsible party for the end-to-end performance of the overall system.

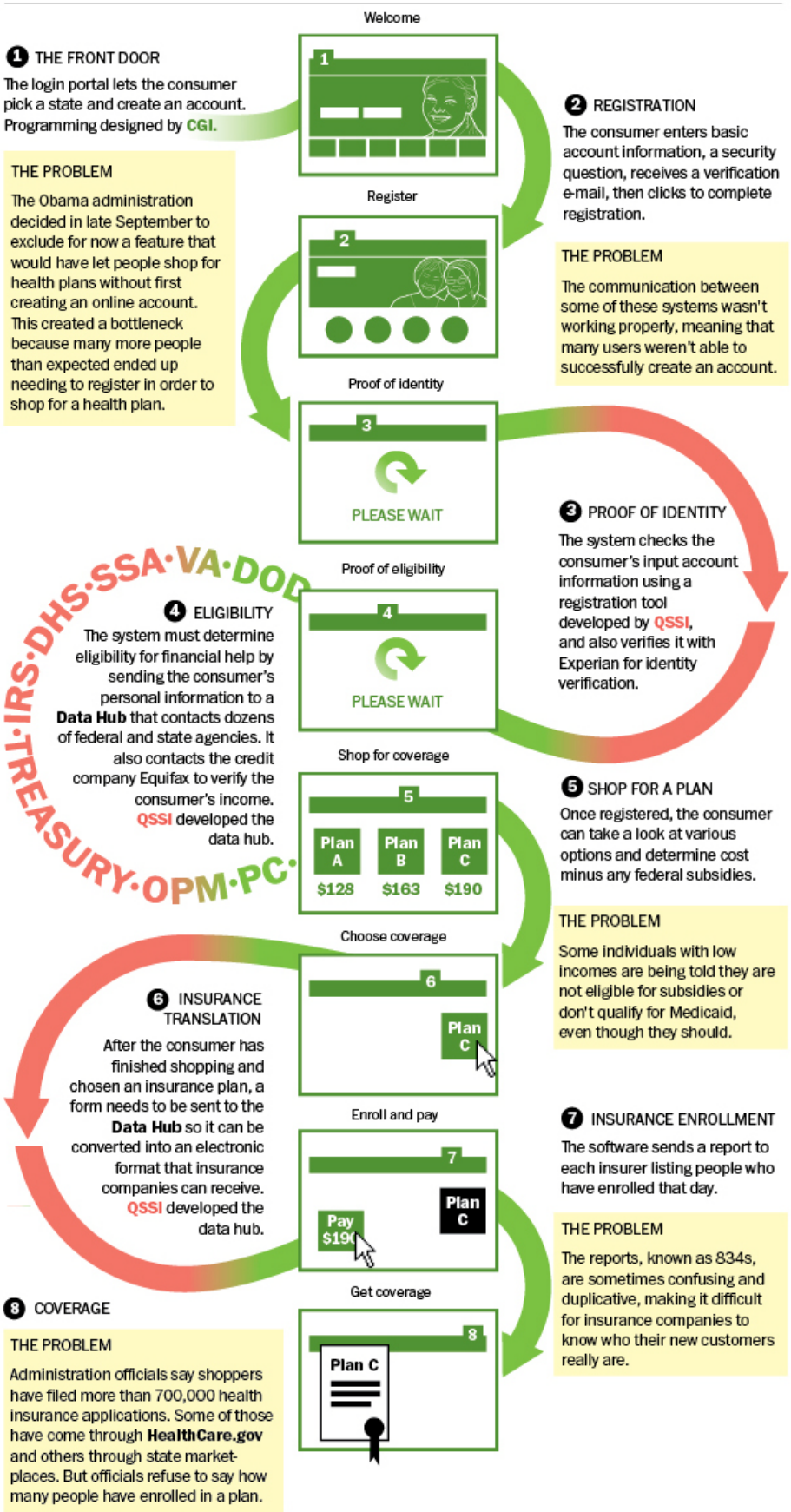
The project was a complex undertaking involving the coordinated actions of multiple federal, state, and private stakeholders. Its mission was to create an information system to support connectivity and near real-time data sharing between health insurance exchanges and multiple federal and state agencies.

The operation of HealthCare.gov reflected the new and changed government policy on health care. During its development some policies were developed on-the-fly. All in all it established a brand new health care infrastructure with different business arrangements with new CMS customers. Participants included consumers (the public), employers, health care insurance companies (issuers), health care brokers and certified councillors. All parties required sustained education and outreach.

5.2. Cost Management

The CGI contract was cost-reimbursable as system requirements were incomplete at contract award. At award, the CGI contract had an estimated total value of US$93.7 million over a two-year base with three, one year option periods. The US$55.7 million-based contract was awarded in September 2011.

Figure 3. HealthCare.gov provider selection work flow [9]



At commencement it was estimated that the completed system would cost US$292 million. By October 2013 however, the overall cost for building HealthCare.gov had topped US$500 million.

According to a Project Auditor's report elements of earned value management (EVM) were applied [3]. There is evidence that, as an organisation, CMS is committed to the earned value management discipline. EVM courses have been jointly developed by CMS and the Defense Acquisition University, a champion of the EVM cause since its introduction to U.S. Department of Defence projects in 1967. Refer to the EVM page of the CMS website [17].

Earned value monitoring provides early warning that a project is straying from its baseline plan, and shows whether actions taken to correct a situation are effective. HHS (CMS' parent organisation) requires that IT investments and projects track and report monthly on cost and schedule performance. CMS would have been required to comply with HHS' EVM and performance baseline management policies and procedures.

The Auditor's Report, dated 8 August 2013 [3], estimated a project completion date of 30 September 2015. It is not clear that earned value management was imposed on all contracting organisations. This may have been difficult due to the cost-reimbursable nature of many contracts.

Newspaper reports indicate that the overall project management and systems integration activities for which CMS was responsible were underfunded. The New York Times reported:

Dr. Donald M. Berwick, the CMS administrator in 2010 and 2011, said the time and budgetary pressures were a constant worry. "The staff was heroic and dedicated, but we did not have enough money, and we all knew that," he said in an interview. [5]

5.3. Schedule Management

Though the CGI contract was awarded 30 September 2011, the government was so slow in issuing specifications that the firm did not start writing software until March 2013, according to people familiar with the process. Deadline after deadline was missed. As late as the last week of September, 2013, officials were still changing features of HealthCare.gov, and debating whether consumers should be required to register and create password-protected accounts before they could shop for health plans.

The site was launched on 1 October 2013 despite known problems. Subsequent to the launch, the chairman of the government oversight committee commented:

"The administration [CMS] *was under no obligation to launch the website on 1 October 2013, yet did so anyway, despite the government's own programmers warning that the site was full of bugs, security holes, and well behind schedule ..." - Oversight and Investigations Subcommittee Chairman Tim Murphy.* [13]

5.4. Requirements Management

CGI's contract was cost-reimbursable because software requirements were not well established at the time of contract award, they evolved over two years as regulations implementing the Patient Protection and Affordable Care Act were issued by CMS.

The New York Times [5] reported that hardware and software requirements on the project had been modified seven times in the 10 months prior to deployment.

In their report of June 2013 the United States Government Accountability Office (GAO) indicated [2]:

... certain factors, such as the still-unknown and evolving scope of the exchange activities CMS will be required to perform in each state, and the large numbers of activities remaining to be performed—some close to the start of enrollment—suggest a potential for implementation challenges going forward. And while the missed interim deadlines may not affect implementation, additional missed deadlines closer to the start of enrollment could do so. ... Whether CMS's contingency planning will assure the timely and smooth implementation of the exchanges by October 2013 cannot yet be determined.

5.5. Size

As the project progressed, the body of code grew to a considerable size. The New York Times cited a specialist who estimated that the site could contain about 500 million lines of code and that as many as 5 million lines of code will have to be rewritten. The Times noted that a large bank's suite of software applications is about one-fifth this size.

It was reported that such a large "stash" of code could indicate that contractors "may be writing their own code in many places where they'd be better off relying on open-source external libraries."

Of course, such bloat in a software project also can be caused if an agency changes its requirements often, causing contractors to adjust on the fly.

5.6. Integration and Test.

A four-hour hearing on Capitol Hill confirmed that pre-launch testing of HealthCare.gov was inadequate given the size and scope of the project. CGI and QSSI confirmed reports that end-to-end testing was conducted only in the final weeks before the site went live and no senior executive at the CMS was designated as the point person for integrating the various components of the system.

QSSI performed end-to-end testing of the system in the last two weeks of September, shortly before the 1 October 2013 launch, and indicated that it communicated problems it found to CMS.

"We informed CMS that more testing was necessary," Andrew Slavitt, group vice president of Optum, the division of United Health that owns QSSI, told the House Energy and Commerce Committee on Oct. 24. He noted that a testing period for the project ideally would have lasted months rather than weeks. This view was echoed by Cheryl Campbell, senior vice president of CGI Federal. Both Slavitt and Campbell said they made no recommendations about whether CMS should delay the rollout of HeathCare.gov because such advice wasn't in the scope of their work.

At a 10 September 2013 Energy and Commerce hearing a QSSI representative testified that he shared test results with CMS but had no direct knowledge of any corrective action taken.

The site wasn't ready as the deadline approached, but CMS stuck to the publically declared deadline. The Washington Post reported that, mere days before the launch date, CMS tested the system's ability to handle tens of thousands of concurrent users. It crashed after a few hundred [9].

The Washington Post reported, "A week before the launch, the site hadn't been tested to see whether a single user could get all the way through the process." Further, a test group of insurance companies had warned CMS a month earlier not to launch the site because of problems with the system.

5.7. Acquisition Management

CGI blamed deficiencies in CMS' overall program management for the failure. They claimed that software delivery was hampered by CMS delaying a number of important business rules for political purposes.

In response CMS officials blamed CGI for overall incompetence. This was not deemed credible by industry commentators who pointed out that CMS should accept overall responsibility for failure given that they selected CGI in the first place.

CMS accepted bids from a group of firms to build HealthCare.gov. There were bids from IBM, Computer Sciences Corp., Quality Software Services and CGI. The agency was to evaluate each bid on seven specific criteria, including proposed cost, security requirements and past performance.

It is on this "past performance" evaluation metric that CMS officials reportedly failed.

In 2004, CGI Group acquired American Management Systems (AMS) for US$858 million. AMS, which was eventually renamed CGI Federal, already had a number of federal contracts and thus gave the Montreal-based CGI Group its entrance into the market for government contracts.

But AMS did not have a great track record with federal work. It had non-performed in a number of projects, including a Philadelphia school computer system and a Mississippi tax system. In the latter case, AMS had to pay US$474 million for its failure. Despite these red flags, CMS selected CGI for the project.

6. Project Review

In March 2013 McKinsey & Co conducted a "red team" review of the project. A "red team" is charged with "pressure testing" the existing trajectory of a project; its mission is to determine if a project will meet its objectives. A red team also identifies risks and suggests risk management strategies.

The McKinsey team identified the following threats to the project [1]:

1. Evolving requirements
2. Multiple definitions of success
3. Significant dependency on external parties/development contractors
4. Parallel stacking of all phases. Many activities were being conducted in parallel
5. Perceived insufficient time for end-to-end testing given the go-live date
6. Launch at full volume. The system would have to deliver its maximum transaction rates on day one.

The top risks identified were:

1. The Federal Exchange would be unavailable on deployment due to system failure
2. This would force long manual processing times
3. Failure to resolve post launch issues rapidly
4. Health care plan data would not be loaded in time. Several health care providers would therefore not offer health care plans.

The red team recommended the following actions:

1. Align on the scope of the initial release. Lock down the scope of HealthCare.gov version 1.0 by 8 April, 2013.
2. Thoroughly test version 1.0.
3. Name a single implementation leader and implement a governance process to manage the critical path and create transparency on critical issues.

HealthCare.gov project manager Henry Chao participated in McKinsey interviews but did not review their final report. [14]

Figure 4. HealthCare.gov project manager Henry Chao (CMS).

7. Failure Modes

7.1. Overview

HealthCare.gov failed on deployment. The majority of users could not complete the user registration and health care provider selection processes. The McKinsey risk scenarios were realised. Most users could not complete registration due to bottlenecks in the user authentication process. Further, response times were unacceptably long, causing many users to abandon the web service and call a helpline.

The well publicised failure of HealthCare.gov caused a flurry of speculation, debate and some technical investigation by the IT community. The following fragments, give us some insight into user reactions and technical problems:

7.2. User Reaction

"These are not glitches," said an insurance executive who has participated in many conference calls on the federal exchange. Like many people interviewed for this article, the executive spoke on the condition of anonymity, saying he did not wish to alienate the federal officials with whom he works. "The extent of the problems is pretty enormous. At the end of our calls, people say, 'It's awful, just awful.' "

- New York Times [5]

7.3. Response Time

What we found after visiting multiple pages was that the problems with response time are pretty evenly divided between server response time issues and browser processing time issues. ... [in our testing we experienced] really bad performance on both the client and server side on average.

...

[Analysing] *an individual request of the registration page and the breakdown of response times across the server and client sides ... This page took almost 71 seconds to load with 59 seconds attributed to the server side and almost 12 seconds attributed to the client side data loading and rendering.*

...

- AppDynamics [11]

Figure 5. *The HealthCare.gov sit sight page [7]*

7.4. Integration Errors

When 100s of services developed by different teams come together, they exchange data through APIs using XML (or similar) formats (note the AJAX failures shown above). Ensuring that all data exchange is accurate and errors are not occurring requires proper monitoring and extensive integration testing. [This is why] *many user interactions are failing, throwing errors and insurance companies are getting incomplete data forms.*

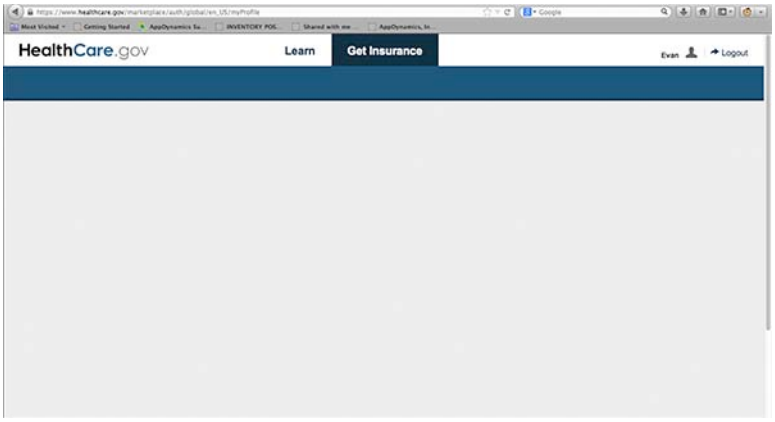
...

- AppDynamics [11]

7.5. Usability

The image below shows a "successful" load of a blank profile page. This is the type of frustrating web application behavior that drives end users crazy. It appears as though the page has loaded successfully (to the browser at least) but that is not really the case.

Figure 6. *A webpage presented but incomplete for many seconds*



7.6. Interface Control

[On investigation it was found that remote servers were returning] *HTTP 503 status code as the response to ... requests for service. For those of you who don't have all of the HTTP status codes memorized this is a "Service Unavailable" response. It means that the HTTP server was able to accept the request but can't actually do anything with it because there are server side problems*

...

- AppDynamics [11]

7.7. Scalability

Building fast and scalable applications is not easy. The answer isn't simply to do more testing before you deploy your application in production. The answer is to design performance and scalability into your architecture right from the start. So yes, performance testing is better than no performance testing, but when HealthCare.gov has millions of concurrent users you really need an architecture that was built to scale from its inception.

...

- AppDynamics [11]

7.8. Architectural Design

One possible cause of the problems is that hitting "apply" on HealthCare.gov causes 92 separate files, plug-ins and other mammoth swarms of data to stream between the user's computer and the servers powering the government website, said Matthew Hancock, an independent expert in website design. He was able to track the files being requested through a feature in the Firefox browser…

He said because so much traffic was going back and forth between the users' computers and the server hosting the government website, it was as if the system was attacking itself.

Hancock described the situation as similar to what happens when hackers conduct a distributed denial of service, or DDOS, attack on a website: they get large numbers of computers to simultaneously request information from the server that runs a website, overwhelming it and causing it to crash or otherwise stumble. "The site basically DDOS'd itself," he said.

...

- HotAir.com [4]

8. Post Mortems

8.1. Overview

Several hearings were conducted post-deployment to determine the causes of failure and the best course for corrective action.

8.2. CGI Testimony

A CGI Senior Vice President, Cheryl Campbell provided the following testimony to The House Committee on Energy and Commerce [10]:

Figure 7. CGI Senior Vice President, Cheryl Campbell

Unfortunately, in systems this complex with so many concurrent users, it is not unusual to discover problems that need to be addressed once the software goes into a live production environment. This is true regardless of the level of formal end-to-end performance testing -- no amount of testing within reasonable time limits can adequately replicate a live environment of this nature. This perspective informs our remarks about what happened on October 1 and in the days that followed. Upon go-live on October 1, the emphasis shifted from software development to optimizing for FFM performance and rapidly addressing issues identified through user transactions. The first set of issues for users dealt with the enterprise identity management (or EIDM) function provided by another contractor, which allows users to create secure accounts. The EIDM serves as the "front door" to the Federal Exchange that a user must pass through before entering the FFM. Unfortunately, the EIDM created a bottleneck that prevented the vast majority of users from accessing the FFM.

8.3. House Oversight Committees

As problems persisted, the development organisation (CMS, CGI and the 54 contractors) suffered a loss of credibility. The chairman of the House Energy and Commerce oversight committee commented:

"[CMS] officials looked us in the eye and told us everything was "on track" but when we pull back the curtain now, the mess is disturbing. What reason do the American people have to believe that the administration is capable of meeting its November 30, 2013 goal for fixing HealthCare.gov or its January 1, 2014 promise to deliver health care to Americans across the country? The botched rollout has created a serious question of confidence and trust in the administration [CMS] *that we will continue asking at our hearing next week ..."*
- Fred Upton, Chairman House Energy and Commerce Committee. ." [13]

It emerged that as early as 8 July 2013 CMS officials doubted their own ability to deliver on schedule:

In various emails dating July 8 and July 20 of this year, [CMS] *officials write that they "under oath stated we are going to make October 1," but other emails express that, "we believe that our entire build is in jeopardy."*

In one document, HealthCare.gov project manager Henry Chao writes, "I just need to feel more confident they are not going to crash the plane at take-off, regardless of price."

Nevertheless, the administration pressed forward, spending hundreds of millions of taxpayer dollars on a website that still does not work. On August 1, [CMS] *administrator Marilyn Tavenner testified to the full committee, "CMS has already completed the majority of the development of the services required to support open enrolment beginning on October 1, 2013 for coverage beginning on January 1, 2014."* [13]

8.4. Security Testimony

Subsequent to deployment, independent expert testimony before the House Committee on Science, Space, and Technology alleged serious security flaws in HealthCare.gov.

Figure 8. Morgan Wright testifies on security

8.4.1. Security Issues

An independent computer security consultant raised the following issues:

1. End to end security testing
2. User account creation and registration
3. Cyber squatting and domain name confusion
4. The insider threat.

8.4.2. End to End Security Testing

The first major issue is a lack of, and inability to conduct, an end to end security test on the production system. The number of contractors and absence of an apparent overall security lead indicates no one was in possession of a comprehensive, top-down view of the full security posture. For a system dealing with what will be one of the largest collections of personally identifiable information (PII), and certain to be the target of malicious attacks and intrusions, a lack of a clearly defined and qualified security lead is inconsistent with accepted practices.

...

The Washington Post stated that the "healthcare.gov site had a glaring security flaw that wasn't patched until last week." This flaw dealt with the management of usernames and passwords ... [It] would have allowed an attacker to take over a customer's whole account in the insurance hub. ... To have discovered this major deficiency after launch only reinforces the conclusion that the site lacks both the proper security controls and comprehensive security test plan."

...

This shows a lack of understanding for the consequences to consumers and the protection of their PII. ... This creates massive opportunity for fraud, scams, deceptive trade practices, identity theft and more. Much of this is playing out right now. [15]

8.4.3. User Account Creation and Registration

The second major issue was the decision to require users to create an account and register before being able to review available plans. This required consumers to provide PII before making a buying decision and it is the opposite of how consumers buy in the private sector. The lack of effective security controls, combined with the requirement to provide PII upfront, has created the conditions for massive fraud and hacking.

This policy change created a series of cascading consequences guaranteeing that PII could not be secured. In addition, it meant that hackers and malicious actors could create fraudulent websites, scams and concoct deceptive practices because it was the 'norm' to provide PII up front.

...

Another outcome of changing the policy was the complexity in rewriting what was already an unsustainable amount of code and the impact on website efficiency. Had the policy remained to only provide PII when it was absolutely necessary to complete a financial transaction, it is quite probable many of the security issues would not have arisen. [15]

8.4.4. Cybersquatting and Domain Name Confusion

A third major issue is the registration of similar, misspelled or deceptive domain names, also known as cybersquatting. A recent article from the Washington Examiner quoted a security expert who had identified 221 websites that appear to exploit HealthCare.gov, and another 499 that also exploited the websites of state exchanges.

For example, when a consumer types in www.microsoft.com, they believe they will be visiting that site. To prevent confusion, and protect the relationship between the company and the consumer, Microsoft has also registered misspellings such as www.microsfot.com. Microsoft has protected the trusted relationship and the possible financial transactions with the consumer.

The reason this is so important to manage from the beginning, and why it relates to website security, is that consumers who mistakenly create an account on a deceptive site can expose themselves to identity theft and account takeover on the actual site they intended to register with. [15]

8.4.5. The Insider Threat

The most troubling aspect [of HealthCare.gov is] the lack of a personnel policy that requires background checks for individuals with access to PII or sensitive information systems.

During testimony on November 6, 2013, secretary Sebelius admitted that convicted felons could be hired as "navigators" and that no Federal policy existed to require background checks.

When dealing with the insider threat, it must be understood that trust is not a control. The mere fact of a background check does not automatically ensure trust will endure. Aggressive auditing should be implemented to deter improper activity and identify procedural weaknesses that could contribute to misconduct, and continuous training should be delivered to the workforce and monitored for satisfactory compliance. [15]

9. Project Status as of January 2014

The Obama administration awarded a US$45 million one year contract to the federal services unit of systems integrator Accenture, to fix the HealthCare.gov website. Accenture will replace CGI.

The technology news website CRN reported:

System integration giant Accenture's takeover of the bungled HealthCare.gov website represents a technology "do over" that will likely result in hundreds of millions of dollars in additional spending to fix the website, according to a federal systems integrator CEO with knowledge of the project. Accenture is currently number three on the Standard and Poor's 500 with US$29 billion in annual sales.

That said, the executive praised the Obama administration's selection of Accenture. "Accenture is top-tier, cream of the crop," said the executive. "And they charge accordingly. Accenture has always done a stellar job for the federal government. If it can be re-engineered and fixed, they are a good one to do it."

The US$45 million is just for the "initial phase of the project, which includes a transition plan to define the work required," said Accenture in a press release announcing the deal. "The contract will be based on mutually agreed upon work plans, which will help define the final value of the one-year contract."

Accenture will replace US$5 billion integrator CGI, No.17 on the SP500, which has been largely blamed for the bungled HealthCare.gov website project.

The Accenture takeover of the project comes after the Obama administration brought in high-level Silicon Valley talent from the likes of Oracle, Google and Red Hat. "They threw some of the best brains in the business at this to at least get it in working order at this point," said the executive. "Now they have to re-engineer the whole thing for the long term."

The HealthCare.gov debacle has the federal government looking more closely at high-stakes IT contracts, said the executive. "The lessons learned are: you better get the right technology, you better scope the project properly, you better assign it to the right contractor and you better have damn good oversight on it for the entire job, including proper time to develop, prototype and test what you have done." [16]

10. Past Behavior and Future Behavior

Governments are no stranger to large-scale IT projects gone wrong, from the FBI's US$170 million Virtual Case File system to the U.S. Air Force's abandoned US$1 billion enterprise resource planning system.

Looking to the future, it is unclear how much of the contracting process will change. HealthCare.gov is just one of many federal contracts that technology companies have botched in recent years. In fact, the New York Times reports that by one study, 40 percent of U.S. federal contracts have failed compared to only 4.6 percent that have succeeded (more than 50 percent have proved "challenging").

FBI men skilled in hunting down serial killers will tell you: "The only reliable indicator of future behavior ... is past behavior." Let us hope this does not apply to what people routinely call "the IT industry".

Picture this: the "IT Industry" is dismantled and replaced with "the Software Engineering Industry". Would the future be different?

11. References

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Resources that may assist you in analysing this case study are:

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