

IT Strategic Project Plan and Presentation

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Open Source Ecology's (2016) mission, as a non-profit organization, is to "create an open source economy", and furthermore a "libre economy is an efficient economy which increases innovation by open collaboration" (para. 1).

The value proposition for OSE's IT strategic plan and outcomes include improving OSE's server infrastructure, unifying data security management, integrating mobile software apps, expanding e-commerce capabilities, and aligning OSE's mission, and message through the convergence of both open software and hardware technologies.

For discussion, Jitsi is an open source video and audio software platform that allows for secure by default transmission, and OSE's project plan is to transition from using Google Hangouts to Jitsi.

In addition, the integration of data communication upgrades, server modifications, and server maintenance is required to support Jitsi but also other open source software platforms on OSE's server. For example, Odoo, Odoo is an open source Enterprise Resource Planning (ERP) platform which is available in a free community version or a pay per module enterprise cloud application.

OSE's change management strategy concentrates on teaching and educating participants collaborative literacy, a term describing a person's "ability to be and work with others effectively." (Fasterthan20.com, 2017).

Furthermore, training contributors to improve collaborative skills using computer supported collaborative work (CSCW) platforms can increase efficiency in organizations like OSE (Medina-Dominguez, Sanchez-Segura, Moreno, & Santin, 2015).

Last, a brief introduction to the project management principle recommended and a GANTT chart are provided to aid in the deployment and execution of the OSE's strategic plan.

Jitsi

Currently, OSE is using Google Hangouts, a group chatting video conferencing application limited to 10 to 25 participants, which is a freeware product for collaboration; however, Hangouts is not an open source platform (Griffith, 2013).

OSE's values and mission focuses on supporting open source computer supported working platforms (CSCW), therefore, moving to an alternative from Google Hangouts to Jitsi is recommended as an open source scalable CSCW platform. According to Jitsi (2016), Jitsi is "an audio/video Internet phone and instant messenger written in Java. It supports some of the most popular instant messaging and telephony protocols such as SIP, Jabber/XMPP (and hence Facebook and Google Talk), AIM, ICQ, MSN, Yahoo! Messenger" (para. 1).

Transitioning from Hangouts to Jitsi will allow for OSE contributors and volunteers to participate on a video webinar and conference beyond the 10-25 limit. In addition, not moving towards an open source platform can continue to send the mixed message to the world that using a proprietary platform is acceptable to create an open source economy, which conflicts with OSE's mission.

Furthermore, proprietary and freeware products that organizations use to collaborate do not have the ability to improve the features and use of the software without including competitive waste, or increasing the costs to innovate. Companies that develop software to make a profit without improving the innovation of the product hold hostage the software to a vendor centric market rather than a product centric market (Perens, 2005).

Jitsi compared to other platforms is an “off the record” platform that respects the privacy of users except beyond a user’s willingness to use features which do monitor data such as Facebook (STOP THE GOVERNMENT SPYING ON YOU, 2013).

OSE’s projected growth for 2017 is expected to reach a consist volunteer base of approximately 25 active contributors developing content weekly, and up to 100 new volunteers who volunteer on demand. Without moving to Jitsi, OSE’s ability to host and publish content will be limited to Hangout’s 10 to 25 people per session. With Jitsi’s video bridging ability and open protocols the limit is determined by OSE’s server bandwidth and hardware, but Jitsi can be scalable to unlimited users.

Operation Costs & Administration

The project proposal to host Jitsi on OSE’s existing server is feasible because the software is free and adds no additional hardware costs because of the recent hardware upgrade last September to a dedicated root server. A risk or concern for using Jitsi on the OSE server is if the bandwidth reaches beyond 1Gbps, however, with Jitsi’s video bridging capabilities and efficient performance the risk is low. In addition, the main costs to implement Jitsi is the server administration of the software, which will require maintenance by a systems administrator to install and maintain the software. OSE’s server administration costs are \$200 for installation and quarterly maintenance is \$75 per year for general updates.

Last, the proposed project final release date is set for February 15, 2017 after Jitsi is installed, tested, and approved by the board of directors of OSE. The proposed dates include: installation of the software on January 17th at 12:00 am CST, February 1st for a test simulation of 30 participants at 7:00 pm CST, and February 10, 2017 at 12:00 pm CST for final review.

Data Communications

Computer and telephone networks are how companies communicate to conduct business and operations. Computer networks are when two or more computers communicate over a medium (Laudon & Laudon, 2015). Broadband and mobile technology is now expanding the reach of networks allowing for more complex systems to integrate and talk to each other. However, network operating systems are now replacing older telephones systems with software defined networks as IP-telephony is disrupting analog circuit switching technology (Flanagan, 2012).

Internet Protocol or IP technology is making it possible to integrate or bring unified communication systems (UC) over the Internet (Susa, Pozgaj, & Vuksic, 2014). UC is a basic, well-timed and dependable communication in real-time that reduce expenditures, quickens business processes and optimizes the mobility, elasticity, and improves employee satisfaction.

Furthermore, Laudon & Laudon (2015) express that client/server computing, packet switching, and Transmission Control Protocol/Internet Protocol, or TCP/IP) are keys to linking communications systems and networks. OSE is using a client/server computing methodology to install, test, and implement Jitsi for video bridging and conferencing.

According to Laudon and Laudon (2015) low-cost leadership, product differentiation, focusing on a market niche, and developing customer and supplier intimacy are four competitive advantage strategies, which companies can use increase market share. Porter's competitive forces model also expresses that market environments are dependent on other firm's response in the competitive landscape (Laudon & Laudon, 2015).

OSE's use of Jitsi as an information and communications system can give the organization the competitive advantage by using data communications to gain social capital and lower operational costs. In comparison to paid software and licensing, the Jitsi platform will give OSE an advantage as a low-cost leader and grow the open source development community towards a product that customers can improve and use at will.

Project Planning

According to Laudon and Laudon (2015), the systems development lifecycle or SDLC is an older method for developing information systems, but still useful. The process represents a waterfall style approach which begins with a "systems analysis, system design, and implementation work." (Laudon & Laudon, 2015).

The systems analysis and systems design of the project plan is to host Jitsi at OSE's server from Hetzner hosting company (2016) for \$41.47 a month, and the server hardware specifications are a "high-performance Intel® Core i7-6700 Quad-Core processor of the well-known Skylake architecture and 64 GB DDR4 RAM, this model is equipped with two 250 GB 6Gb/s SSD hard drives" (Hetzner, 2016).

The implementation work for OSE's server administration costs are \$200 for installation, \$75 for implementation, \$75 for testing, \$75 for updates, and \$9.99 a month for backups for a total of \$1,042.52 for 2017. The total costs for 2018 is \$692.52 for hosting, updates and monthly backups. See Table 1 and Table 2.

Table 1

2017	Task Costs	Qty	1st	2nd	3rd	4th	Total
Server Hosting	\$41.47	12.0	\$124.41	\$124.41	\$124.41	\$124.41	\$497.64
Installation	\$200.00	1.00					\$200.00
Testing	\$75.00	1.00					\$75.00
Implementation	\$75.00	1.00					\$75.00
Jitsi Updates	\$75.00	1.00					\$75.00
Backups	\$9.99	12.0	\$29.97	\$29.97	\$29.97	\$29.97	\$119.88
Costs per Quarter			\$154.38	\$154.38	\$154.38	\$154.38	\$1,042.52

Table 2

2018	Task Costs	Qty	1st	2nd	3rd	4th	Total
Server Hosting	\$41.47	12.0	\$124.41	\$124.41	\$124.41	\$124.41	\$497.64
Installation	\$200.00	0.00					\$0.00
Testing	\$75.00	0.00					\$0.00
Implementation	\$75.00	0.00					\$0.00
Jitsi Updates	\$75.00	1.00					\$75.00
Backups	\$9.99	12.0	\$29.97	\$29.97	\$29.97	\$29.97	\$119.88
Costs per Quarter			\$154.38	\$154.38	\$154.38	\$154.38	\$692.52

Ecommerce & Collaboration

Maysville, Missouri, is a small town of fewer than 13,000 people, but Marcin Jakubowski, farmer-scientist is reaching the world from a rural farm outside of the city using the Internet to collaborate with people from around the world.

Marcin Jakubowski, Ph.D., is the founder of Open Source Ecology (OSE), a TED fellow, and Catarina Mota, Ph.D., who also is a TED fellow, are married and live on site in Maysville, Missouri ("Open Source Ecology," CC-BY-SA 4.0). Marcin and Catarina are developing an open hardware platform allowing for contributors to crowdsource research and development of industrial machines by publishing documentation online ("Open Source Ecology," CC-BY-SA 4.0).

Although Jitsi is a useful tool for collaboration, a mobile app is recommended to integrate the various software platforms for attracting new partners and businesses. Developing and building an OSE mobile app would allow for open hardware developers to not only connect with local groups and communities but also connect to global supply chains.

Electronic Commerce Integration

Meyskens and Bird (2015) state that “crowdfunding facilitates the financing process by providing a platform that enables individuals passionate about an idea or cause to easily invest small amounts of capital and to share the idea with others.” (p.1)

OSE’s primary source of income is through donations, second, crowdfunding, and third, revenue from workshops and sales of equipment. Hosting Jitsi on OSE’s server can provide an opportunity to increase OSE’s social capital and therefore, provide more funding for the organization.

Creating an OSE app that sponsors or advertises open hardware projects for development via a crowdfunding mechanism can also be available within the mobile app. Participants who join or sign up during a video conference or virtual meeting can download the app, donate or sign up for other crowdfunding opportunities.

O'Brien (2015) says that B2B eCommerce is growing four times faster than B2C eCommerce and that manufacturers can identify commercial waste, use resources better, and attract new generation customers with modern technology.

Sourcing is major function in manufacturing and sharing supply chains for open hardware developers is crucial for feasibility of product development. For example, building a 3D printer can be built at lower cost if local sourcing of materials is available.

Integrating a directory for the sourcing of materials in the mobile app could increase OSE's reputation and provide supporters and developers a means to collaborate and sharing sourcing of materials. Bedard (2014) expresses that consistency, creating trust, and value are three things businesses can do to attract customers online. In addition, applying collaboration techniques using mobile technology is a way to remain consistent, capture value through documentation, and increase social capital as an organization.

Collaborative Literacy

Open Source Ecology's (OSE) organizational structure, and culture is the fundamentally open source, which consists of volunteers from all over the world who collaborate online. Open Source Ecology (CC BY-SA 4.0) states that OSE hosts workshops as a part of a business framework, also known as a Distributive Enterprise, "a transparent enterprise that maintains the

open replication of such an enterprise - independently by others or with incubation assistance - at the core of its operational strategy."

A distributive business is a new approach as most companies do not share openly, but rather keep secret or private intellectual property and practices. OSE publishes work under the creative commons licenses, which according to work together "Creative Commons - Attribution-ShareAlike 4.0 International Cc-By-Sa 4.0" (CC-BY-SA 4.0). The license allows "people to copy, and redistribute the material in any medium or format" and "remix, transform, and build upon for any purpose, even commercially" (CC-BY-SA 4.0).

In addition to e commerce value creation through crowdfunding, creating a mobile app would also allow for open source partners and enterprises the ability to upload data to the wiki, publish documentation, make a video or audio conference calls, and connect to social media with other open hardware developers and businesses.

Laudon and Laudon (2015) expresses that production and manufacturing, sales and marketing, human resources, and finance and accounting are four primary functions of businesses. A mobile app would also provide OSE the ability to manage all four principal functions of companies.

For example, the integration of the mobile app can allow for volunteers to document or log hours for volunteering of projects faster than on a desktop giving the volunteer more time towards production rather than focusing on lower level tasks. Also, creating features in the app to post directly to Facebook for sharing with friends and family as free advertising of products or services is another example.

Using collaborative technologies and techniques such as mobile technology can include locating features for partners and enterprises to find each other to work together. For example, if the app can connect to Facebook groups to search for people that would be able to do a work exchange or volunteer for open hardware organizations.

Project Security Assessment

OSE uses Jitsi to conduct and perform video conferencing for collaboration of open hardware development use client and server technology. A lack of security and data protection can have negative impacts on stakeholders, such as customers or partners, whose relationship depends on social trust and ethical practices of an organization (Hartono, Holsapple, Kim, & Simpson (2014).

Internal and External Threats

OSE's internal threats can include any volunteer who works for the organization for example, a systems administrator. Laudon and Laudon (2015) state that vulnerabilities are "the potential for unauthorized access, abuse, or fraud is not limited to a single location but can occur at any access point in the network" (p. 262). Sykes (2014) writes, "It will take a combination of things—technical defenses, intrusion detection /prevention systems, processes and more—to provide meaningful protection." (p. 1).

External threats can include hackers and cyber criminals who access unauthorized data information for malicious purposes or abuse. For example, when people donate or financially contribute to OSE, monetary information is provided to make a transaction. If a lack of security controls are not implemented cyber criminals can steal contributors information and commit

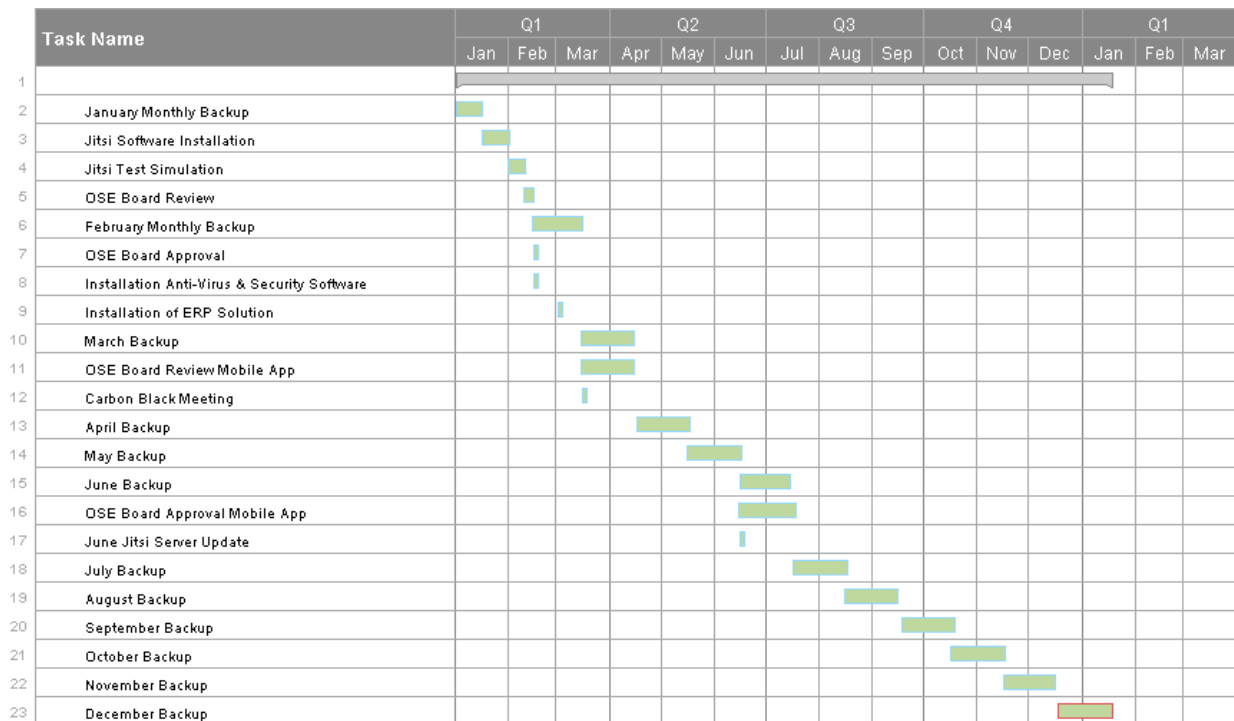
financial fraud. Purchasing or using SSL Secure Socket Layer certificates is recommended for financial and electronic commerce transactions.

Outsourcing security controls to Carbon Black (2017) may be necessary as networks scale and grow larger than the organization's ability to manage. However, OSE's server threats include software viruses, worms, malware, and availability issues. Installing antivirus and security software on the OSE is not only recommended but is required to keep the integrity and confidentiality of clients. Encrypting sensitive data that is not meant to be available to unauthorized user is recommended with industry password protection.

Project Management & GANTT Chart

Laudon and Laudon (2015) describe that a Gantt chart is a formal planning tool for management and documentation of projects. Below is a tentative Gantt chart of the project.

Table 3



Conclusion

Open Source Ecology or OSE supports open source collaboration platforms and the organization is moving from Google Hangouts to Jitsi as an open source computer supported collaborative work platform or CSCW (Medina-Dominguez, Sanchez-Segura, Moreno, & Santin, 2015).

With unified communications and IP technology, OSE is using a client/server methodology to host video conferences and also video bridging to connect with open source the hardware development community. The Hetzner (2016) hosting company charges very low fees for 1Gbps bandwidth dedicated root server and the hardware requirements meet Jitsi specifications. The Jitsi Project and Budget Proposal is included in a spreadsheet form and available for review.

Open Source Ecology or OSE supports open source collaboration platforms and the organization is moving from Google Hangouts to Jitsi as an open source computer supported collaborative work platform or CSCW (Medina-Dominguez, Sanchez-Segura, Moreno, & Santin, 2015). OSE is an organization that promotes the open hardware movement of entrepreneurs and innovators through collaborative technologies. Creating an OSE mobile app would fulfill and enhance operational excellence, build trust with other contributors, crowdsource decision making, and increase social capital. As mobile technology is becoming ubiquitous, businesses and organizations are finding the importance of implementing more ways to achieve a seamless integration of communication (Pike, 2014).

Data security is important for organizations to explore and discuss as risks and threats are present when using Internet and cloud server technologies to host websites, video conference

calls, send e-mail, accept charitable donations, and financial transactions. Security policies, data protection technologies, and unified threat management systems and solutions like Carbon Black (2017) can help to mitigate risks by identifying potential threats and vulnerabilities within IT systems.

The open source method for developing software is a self-sustaining model that is also changing the way people develop hardware (Perens, 2005). Both open hardware and open software development are created from a culture of open source principles and values that also drive Open Source Ecology's (OSE) mission and philosophy. Open Source everything!

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