Letter of Motivation

My name is Jason Kerr-Rabbles from Ghana, West Africa. I graduated from Coventry University with an MSc degree in Management Information. Regarding my field of study, I have a good background in the area of systems analysis, financial analysis, systems design and database design. I have also done some research and extensive work in crytocurrencies, electronic payments, medical health records, trading platforms, insurance applications and telecom.

Why I want to study the Blockchain technology

There's a ton of information out here in Ghana. And businesses are figuring out how to put it to work. The experts here call this state of affairs big data. The definition is squishy, but it usually boils down to this: Companies like CDH Financial holdings, the company i work for have access to vastly more information than they used to, it comes from many more different sources than before, and they can get it almost as soon as it's generated. But I want to put CDH and its subsidiary businesses in a slew of industries putting the blockchain technology front and center in all parts of its operations. All the data we gather are huge amounts of information, often meshing traditional measures like sales. We can scrutinize it to figure out how to improve upon our products, cut costs and keep customers coming back using this explosive technology.

Blockchain will radically change the current business models for gaining important benefits on marketplace. This evolution will allow small and medium enterprises to benefit from this new trend that empowers today’s business. But, there is another problem that is required to be solved: I am a lot interested in the integration between blockchain and the developing countries business ecosystems like health, banking and education. Want to take this course to bridge that gap.

Blockchain For Health Data and Its Potential

Introduction

It is a very exciting time for health care and information technology (IT).Due to improvements in genetic research and the advancement of precision medicine, health care is witnessing an innovative approach to disease prevention and treatment that incorporates an individual patient' s genetic makeup, lifestyle and environment. Simultaneously, IT advancement has produced large databases of health information, provided tools to track health data and engaged individuals more in their own health care. Combining these advancements in health care and information technology would foster transformative change in the field of health IT.

Blockchain technology has the potential to address the interoperability challenges currently present in health IT systems and to be the technical standard that enables individuals, health care providers, health care entities and medical researchers to securely share electronic health data.

Proposal

This proposal involves the use of a public blockchain as an access control manager to health records that are stored off blockchain. There are currently no open standards or implementations of blockchain that utilize this approach but research supports the feasibility of the proposed solution. Bitcoin has already demonstrated that trusted, auditable computing is possible using a distributed network accompanied by a shared ledger. Additionally, the technologies for data storage, security and encryption exist and are in use today. This paper borrows heavily from the Massachusetts Institute of Technology' s published research on using a public blockchain to manage and control access to personal data.

Bitcoin and Private Blockchain Limitations for Health Care Application

Bitcoin is based on open source cryptographic protocols and has proven to be a very safe platform for crypto currency exchange. While the identities behind some Bitcoin transactions remain unknown, the platform provides transparency as anyone can access the blockchain and see balances and transactions for any Bitcoin address. Lack of data privacy and the absence of robust security make the Bitcoin public blockchain unsuitable for a health blockchain that requires privacy and controlled, auditable access.

Additionally, the Bitcoin standard for block size and maximum number of transactions per second present scalability concerns for large - scale and widely used blockchain applications.

Private and consortium led blockchains would address the privacy, security and scalability concerns. However, these blockchains would pose different challenges as they run the risk of not being vendor neutral and do not use open standards.

Blockchain Model For Health Care

Any blockchain for health care would need to be public and would also need to include technological solutions for three key elements: scalability, access security and data privacy.

Scalability

A distributed blockchain that contains health records, documents or images would have data storage implications and data throughput limitations. If modeled after the Bitcoin blockchain, every member in the distributed network of the health care blockchain would have a copy of every health record for every individual in the U.S. and this would not be practical from a data storage perspective. Because health data is dynamic and expansive, replicating all heath records to every member in the network would be bandwidth intensive, wasteful on network resources and pose data throughput concerns. For health care to realize benefits from blockchain, the

blockchain would need to function as an access control manager for health records and data.

Technical Advantages of a Health Care Blockchain

Blockchain technology offers many advantages for health care IT.Blockchain is based on opensource software, commodity hardware, and Open API' s.These components facilitate faster and easier interoperability between systems and can efficiently scale to handle larger volumes of data and more blockchain users. The architecture has built in fault tolerance and disaster recovery, and the data encryption and cryptography technologies are widely used and accepted as industry standards.

The health blockchain would be developed as open source software. Open - source software is peer-reviewed software developed by skillful experts. It is reliable and robust under fast changing conditions that cannot be matched by closed, proprietary software. Open source solutions also drive innovations in the applications market. Health providers and individuals would benefit from the wide range of application choices and could select options that matched their specific requirements and needs.

Conclusion

The most efficient and effective approach for advancing interoperability objectives would be to establish a technology infrastructure for health IT based on open standards. Open API' s based on industry best practices are vital and essential to addressing interoperability. However, open API' s are essential but not sufficient. A shared distributed infrastructure that provides a comprehensive view of an individual' s health data across a lifetime is an equally essential component of interoperable health IT systems.

Blockchain technology addresses interoperability challenges, is based on open standards, provides a shared distributed view of health data and will achieve widespread acceptance and deployment throughout all industries.

Utilization of the proposed health blockchain described in this paper has the potential to engage millions of individuals, health care providers, health care entities and medical researchers to share vast amounts of genetic, diet, lifestyle, environmental and health data with guaranteed security and privacy protection. The acquisition, storage and sharing of this data would lay a scientific foundation for the advancement of medical research and precision medicine, help identify and develop new ways to treat and prevent disease and test whether or not mobile devices engage individuals more in their health care for improved health and disease prevention.

Cell: +233541448708
E-mail: jasonkerr2006@live.com

Jason Kerr-Rabbles

Core skills / Experience

- Experience working in a development, analyst and / or application support role.
- Advanced exposure to broad technical skills such as Object Oriented programming (JAVA), relational databases (data modeling/SQL/ Oracle, MSSQL/ Mongo and MySQL), web UI (design and development), XML, application architecture
- Knowledge of the insurance industry with implementation experience on an insurance related project
- Knowledge of the money market industry with implementation experience on brokerage & fixed income related project.
- Exposed to software development lifecycle (AGILE)
- Experience with Tomcat, Web Logic, Websphere, and Windows 2008 Server
- Demonstrate ability to efficiently manage implementation schedules and provide ongoing support for technical projects that are on-going
- Experience developing technical specifications and then implementing those specifications through a combination of custom programming and product configuration
- Experience with complex enterprise systems that are integrated with legacy systems
- Demonstrate ability to troubleshoot, enhance, test, and deploy complicated integration software.
- Experience with XML, SQL and a scripting language such as VBScript and JavaScript
- Business Process and configuration experience with configurable software such as PeopleSoft, Siebel, or SAP n-tier web architected solutions
- Experience with Java, Ant, Oracle, and SQL Server
- Experience writing macros and complex formulas in Microsoft Excel
- Ability to work independently and within a team
- Strong oral and written communication skills

- Ability to work with services consultants to review technical designs and participate in code reviews
- Experience with and understanding of web/J2EE architecture
- Fast learner that can think out of the box and come up with creative solutions, while multi-tasking.
- Highly proficient system and networking admin skills on UNIX/Linux, Mac and Windows platforms
- Experience with Web application frameworks and web services
- Intermediate to expert programming skills using C#, Java, PHP, Ajax, Perl, Python & Ruby
- Experience with JASPER and Crystal reporting tools
- Experience with virtualization technologies (Citrix, VMware, Hyper-V)

Education/ Qualifications

- MSc. Management Information Systems, (September 2015)
  Coventry University, UK

Majors: Business Simulation, Software Engineering, Strategic Management, IT/ IS Procurement, Advance Database Systems, Financial Analysis for Managers, Decision Support Systems.

- BSc (Hons) Computer Science, (May 2011)
  Regent University College, Ghana

Majors: Project Management, Unix/Linux Systems, Simulations and Modeling, Software Engineering, Network Information Systems, Advanced Database Management, Data Structures, Discrete Mathematics, Compiler Designing, Computer Organization & Architecture, Web Technologies, E–Commerce, Hardware Programming, Data Communication, Network and Information Systems, Network and Telecommunication, and Cyber Law

Professional/ Work Experience

- Software Engineer

CDH Financial Holdings Limited, Ghana, **(February 2013 to date)**

- Development team lead for an in-house insurance portfolio management software development
- Collaborate functions within the consulting team, solution team, customer support team, with product development, QA, and professional services to resolve problems, optimize processes, and provide product feedback.
- Solution consultant for developing Phoenix Insurance Banc assurance product and application.
- Exposure to a broad range of projects touching on health insurance, brokerage, balanced funds etc.
- Manage responses to issues as well as regular communications with project teams to help avoid project development issues, prepare for system updates, and ensure the project's success;
- Attend internal meetings, reading internal materials, and making periodic presentations to the CDH Group Board/Project Steering Committee on new or existing areas of product mastery.
- Mentoring of Solution Consultants within the Solution Team

- Deployment & L2 Support Engineer (Application & Software)

Huawei Technologies S.A. Ltd, Ghana [**August 2011 – January 2013**]

Key Roles:

- L2 system support engineer
- Deployment/ Service delivery engineer

Projects:

- VAS Service Delivery platform for MTN West & Central Africa
- Combined Messaging Platform for Vodafone Ghana
- Short Message System & WAP Gateway for Tigo Ghana
- Mobile Advertiser & Newspaper System for MTN Ghana

- Technology Instructor

Logic Minds Development Group, [**2009-2010**]

- Instructor for robotics, microprocessor engineering and artificial intelligence for Ghana International and Martins De–Pores Schools
- Basic robotic programming tutoring using Python and Basic for NXT robots

Bio-data

Nationality: Ghanaian

- DOB: 05.05.1988
- Language Proficiency: + English (Fluent)

References

Senya Seyena-Susu
Group HR, CDH Financial Holdings Limited
+233 50 529 8874

seyenasusu@cdhgroup.co

Dr Catherine Adu-Sarkodee
Medical Director, Gilead Medical Centre
+233 208304282
catherine.adu-sarkodee@gileadmedgh.com

Dominic K Louis
Senior Lecturer & IT Programmes Manager
Ghana Technology University College
+233 202398195
dlouis@gtuc.edu.gh