Comments for Digital 21 Strategy 2004 by Mr. David Chow on behalf of Hong Kong Kong Linux Industry Association

Suggestions and in response to the "Public Consultation on 2004 Digital 21 Strategy" of the Communications and Technology Branch of the Commerce, Industry and Technology Bureau

This paper is a collection of comments and ideas from the members of Hong Kong Linux Industry Association and is prepared by Mr. David Chow, the Chairman of the Hong Kong Linux Industry Association. It represents a group of companies in the Linux industry who provides services, products and in active Linux related businesses.

1.Openness of software technology and open-source software adoption in the government

Currently the encouragement from Government to use Linux is not enough. For example, Beijing Government has announced a training scheme to train 100 Linux trainers (teachers), 1000 Linux engineers and 10,000 Linux users. This should spread through the use of Linux in different layers of the society immediately. Also China Government has successful attracted IBM to set up a multi-million Linux centre in China. I believe HK Government can take some initiative in doing something like this.

Thailand government funded the education sector for purchase over 330,000 units of personal computers with Linux preloaded to encourage Linux usage from primary education to secondary education.

In China, in general, Government and major enterprises, they prefer open source software like Linux in preference to other non-open source software. The reason is obvious. They need security and protected from software suppliers hacking into their systems. For example, Beijing Government has made a giant step towards open source software is to award a substantial tender for replacing all their systems to Linux gradually from year 2001. Another good example is our neighbour country, South Korea. They are the most aggressive Government in Asia in encouraging use of Linux. Because of the copyright problem, most of the organization favours Linux and are widely being accepted in the Country.

UK government also announced a clear Linux and open-source migration strategy since 2001.

Brazil, India, Finland, Singapore, Korea and many countries' government also did a similar announcement since 2000 and 2001.

The Hong Kong government is a very late adopter of open-source and open standards on computer systems. However, until now, our government didn't make such announcement regarding preference to open standard strategy. Having a clear open standard strategy is clearly a world wide initiative rather than a regional or specific industry initiative. It is a pity that HK government is still lacking behind the **WORLD** trend.

History of the computing and information industry tells us proprietary platforms played a hard time in the industry. Say, fax machine and mailling systems. In the old days, fax sender and fax receiver must have the same fax machine to communicate. Until we have an open standard protocol so that fax can be commodify. Our email systems todays uses the SMTP protocol which is an open standard protocol existed for than 20

years, which before we have dozens of proprietary email protocols which didn' t success. The Internet took more than 20 years to become so successful (as today' s Internet), by merging dozens of private networks into a single unified network (The Internet) using the standard Internet Protocol (IP) for exchanging information cross regions, linking up countries and organizations.

We already know open standard drives public adoption to a certain technology. Close source does not imply non-open standard, but open source does implies open standard. For example, an email program such as Netscape mail or Eudora mail is not an open source software, bu they both compliance to open standard email protocols such as POP3, IMAP4, and SMTP such that they can talk to each other.

Government should consider the lowest Total Cost of Ownership (TCO) of a system rather than always the lowest Total Cost of Acquisition (TCA) as a long term cost saving strategy. The most important of a system is the scalability, interoperability and the most importance is resource life-cycle management. As open source guarantees the user herself to control its life cycle, there is no reason why open source and open standard requirement is not in our tenders.

Open standard requirement is always not in government tender requirements. HK government have put on paper in black and white on its purchasing policy to select a service or product from more than one supplier or having at least an alternative solution provided by a secondary supplier. However, the HK government has demonstrated that most of its projects and applications are build on a single proprietary platform (e.g. Microsoft). For example, the mission critical and highly secured HK identify card system has built its front-end (kiosk and card readers) only operable on Microsoft Windows platform, which is a proprietary operating system by a single company named Microsoft. This is extremely dangerous on putting our mission critical security system which involve the whole city on a proven insecure, unreliable and proprietary platform. Microsoft together with its products has also broke the anti-trust law in USA, the court case between the state government of California was closed in August 2003 and Microsoft was guilty for breaking the anti-trust law together with a compensation of 1.2 billion US dollars to consumers.

In Hong Kong, A-level examinations uses Microsoft Word as the education materials and also appears to be a defacto standard of application software for examination. This guarantees all students are trained up to be a Microsoft customer. Microsoft Word is a proprietary software and it uses proprietary file formats but together not supporting open file formats such as XML which is widely used in open source software (OpenOffice) and itself is an open standard. Teaching of word processing technology should not bind to a specific product, and especially a product that is not compliance to open standards.

Government agencies also demonstrated their lack of knowledge in open standard and promotion of vendor specific software. Many government departments uses proprietary file formats for electronic form inputs and file transfer. For example, the Innovative Technology Commission uses Microsoft Word file format as the electronic application form. The form is also full of macros which is prohibited to run in other platforms. There is no alternative way in submission as well. This also guarantees all ITF projects have Microsoft incredients and even gurantees filter out open source developers and users to submit ITF proposals. With such practice, there exists likelihood to build "Innovative Technologies" on Microsoft Windows platform and reinforce the Microsoft monopolization.

The HK government should be a leader for driving IT adoption and e-business

adoption, promote technology innovation instead of a leader of the Microsoft marketing department and stratific partner. It is such dangerous to continue to throw resources without definite limit to a non-open platform. Our risk will continue to increase until our government wake up to aware this big problem.

Another reason for awareness of open standards is because the top IT managment position in HK government is neither comming from the IT industry nor having a professional qualitfication in the field. This may cause incorrect understanding or open technologies or even making wrong decisions on technology directions for the government.

Government agencies not only promote vendor software and create strategic advantage for Microsoft. They may be lacking of knowledge in software technologies, we often heard they publically spell out "PowerPoint", "Excel" and "Word" in substitution to presentation, spreadsheet and electronic documentation. Strictly speaking "PowerPoint", "Excel" and "Word" are trademarks and brand names of Microsoft Corporation, it is **ILLEGAL** of infringement to intellectual property rights to promote trademark and brand names publically without consent to brand name owners. This reflects the fundamental knowledge in both computer software knowledge and legal knowledge of government agencies are very low. This also create potential legal issues for the government. Government herself, by becoming the leader of brand name promoter, it will lead to a serious social issue rather than an organization specific legal issue.

Suggested Actions

- Setup training courses for those who use computers in all government departments. Understanding information technology in reallife communications, educate the importance of exchange of data in open standards.
- Setup training for IT staffing, understanding of software technology, increasing the understanding of open standard importance and technology life-cycle management. This shoud be specially teached to all project decision makers and analysts. This can significant reduce the chance of loosing technology investments.
- Held seminars for government users to all departments, promoting importance of open standards.
- Enforcement of file exchange format standardization. Stop promoting proprietary formats, only allow open-standard file format distribution. For example, file format such as text-based and xml-based document (OpenOffice .sxw, .sxc, .sxi), html, txt , RTF, PDF and many open standards available.
- Immediate change of educational and examination materials. Remove all vendor names (such as "Microsoft Word" and "Excel" is a trademark of Microsoft Corporation). Use the term word processing and spreadsheet instead.
- Distribute notices to all government agencies on stop promoting brand names and trademarks, give detail explanation and address legal issues if necessary.
- Put open standard as a strict requirement on all government projects, including application, hardware technologies and operating systems requirements when ever possible. Should not say "Open Source" is an option, but the preference or requirement. The reason is simple, it is because the Government is now a Microsoft shop and mainly uses non-open source and non open stanrdard software technologies. With a working culture of "fear to change", open source and open

technology will never widely adopted until it became an official requirement.

- Migrate mission critical systems to open platforms. Preferrably open source software to ensure full control by the government herself.
- Set open source software and open standard into primary and secondary school educational materials. This can not just promote open standards but also lowering the cost for students and schools.

2.Strategy and directions of Grid computing development and area of high performance cluster computing

Grid and high performance cluster computing is the emerging technology, and is believe to be the most disruptive technology of the next decade. Cluster computing technology using as high performance computing (HPC) is a mature technology and has been widely adopted worldwide in the past decade. Many universities and governments including China, Singapore, Korea and Japan government have already made a movement on setting up high performance computing centers to facilitate HPC users on sharing high computing power and as for developers for R&D usages. Universities in Hong Kong has also setup HPC facilities for their own use. Government has also adopted high performance clustering computing technology for in some departments. This shows Hong Kong has been a fast technology adopter. However, just being a technology adopter it is not good enough and cannot gain enough econormic advantage for the Hong Kong IT industry through this emerging technology wave. As Grid and high performance cluster computing are very important and not just Hong Kong, the Hong Kong IT industry should make use of this opportunity by technology innovation and creation in this area. At the same time, Government should react quickly on encourage and facilitate local IT industry on developing cluster, Grid, distributed network applications or related resources. For example, we can set up publically accessible HPC R&D facilities in HKSTP to facilitate developers and users. This can not just to serve users and developers, but also promoting Hong Kong as a high tech city and attract technology invesntments. To ensure our industry could catch up this wave, this must be done as soon as possible. Since Hong Kong already have the experience on implementing HPC centers and related projects as users and adopters. This means we already have the domain knowledge of users of HPC. Hong Kong also have its unique advantages on being a HPC technology adopters. With its geographical nature of high density of population which is very suitable for Grid computing infrastructure. Hong Kong also have good HPC user candidates, for example, Bioinformatic industry and digital entertainment in which are encouraged by the Hong Kong Government. Other industries such as online gaming, financial services and banking, the Government, and of course the IT industry are all good candidates of HPC users. Hong Kong Science and Technology Parks with the initiatives on setting up an internation software exchange centre and the software testing and certification center, the HPC R&D center can further enhance and complement the scene. With already a high potential market and good networking infrastructure, Hong Kong should have no reason on not pushing this emerging technology aggressively in the region.

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3.HK Linux industry working with China to find business opportunities

Local Lunix industry should be strongly encourage by Government to make more closer ties and exchange activities with Linux counter-parts in Mainland China. This is very important as most of the local businessman knows that they have the products but lack of the network to penetrate the China market. So having more co-operation with counter-parts in China will definitely make break-throughs in short terms.

Government should contact nearby Pearl River Delta, for example, Shenzhen has many fine Science Parks which not many Hong Kong people knows. They should be attracted to move in there to enjoy their super low rent and much lower R&D engineers salaries plus other tax benefits like two years tax exemption and three years half tax exemptions. These are really good news for local R&D firms. Hong Kong should focus on its core competency who has a good infrastructure for international sales and marketing. This is really a win-win strategy.

4.Strategy onlocal R&D promotion and encouragement

The strategy in encourging local R&D by the Government is very confused. First of all, for a very long time Government top ranking secretaries and officers in the IT Departments are non-IT or technology professionals. R&D is really a professional exercise, but how can a non-professional person make a professional decision. IT is science and should be treated like any other professional departments like accountants, architects, lawyers, etc. Our mother Country, China, already more advanced in this area ten years ago. They insist on all technical or professional departments to be headed by professionals. I think the HK Government is making jokes with the IT industry if they continue the practice of using non-professionals to manage a serious science arena. You can think of it this way, how can an ordinary person build a 50-storeys building successfully without a decision from an architect.

There exists shortage of human resources for local R&D. Government has been encouraging R&D, but at the same time reduce funding for education. Although government has been promoting tertiary education in terms of increasing the "volume". As you see, the unemployment of university graduates are serious because our local HR market did not have such large demand on university graduates. However, the industry does require high skill and high quality HR' s instead of high volume low quality HR. I think the government is putting too much effort on over supplying the market with low quality tertiary educated HR, but not focused on quality education.

Suggested actions

- Use professional qualified management rather than someone who is not qualified.
- Reduce resources on non-core tertiary educations, focus on improvement of universities
- Increase public awareness of IT professionals and certifications as well as like professionals of other industry

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5.ITF and related funding policies on beneficial to local R&D exercise and SME's

The current statistics indicated a high percentage of the ITF funding are awarded to non-government organizations, like Hong Kong Productivity Council. Real SME application successful rate is very low and harsh. I think the current policies maintain by ITF is conceptually total wrong. The original idea of ITF funding is to encourage SME to do more R&D. ITF should not be viewed or managed like a venture capital fund, of which investment return is their primary consideration factor. As we know science inventions are high risk high gain matters and not always predictable. ITF should only review on the genuineness of the R&D projects and not turning down based on their risk factors. The current practice of the ITF is holding back the funding and extremely cautious. We can see from the fact that only a small portion of the ITF is being awarded out to the industry, less than 50% of the funding is granted. What is the use of holding back the ITF? To save money? Or to prevent innovations?

The ITF Committee has to wake up! Another bureaucratic setback at the ITF is the investigators are not professional enough to assess the application. For example, a PhD in material science in denying the application of a computer engineering project without understanding the technology. However, the denied project gained an "Evolution Award" in Silicon Valley, IT excellece award in Hong Kong and even winning the Asia Pacifc ICT Award defeating more than 14 countries. The assessor tends to turn down the project without careful evaluation or don't even give a chance to the applicant to have a full presentation of their project. I believe the ITF should loosen up their standards, less risk factor consideration and upgrade their investigator to professional level. Otherwise, it will end up ITF more like an investment fund than its original idea to encourage innovation, facilitate and lowering the cost of R&D for SMEs.

Disregarding the assessment policies about the return on investment of a project. The commercialization of the project is the key issue on getting benefit out of innovation and the result of R&D . The current ITC did not have concrete policies on helping the commercialization of R&D results. In fact, there exists hundreds of ITF projects or results, sitting in the garage and having not further actions on commercialization. This is true because most of the researchers or project leaders are not coming from a business or commercial background. This can prohibits the commercialization of such a project. The most important thing is that the ITC should try to commercialize those ITF project results and not wasting those valuable results.

Suggested actions

- Improving the quality of assessor, hire the right person for project assessment. With at least some degree of qualification in the industry. R&D is a highly technical exercise and should be accessed by professionals, not politicians.
- Revise the ITF policy, focus on technology innovation and helping SME's on R&D, business issue or investment return is really the issue of the company, not the facilitator (the ITC or the government).
- ITC to setup a team, aimed to commercialize successful ITF results (in terms of technology success). It can focus on finding venture capital funding, setting up business models or even seeking the right partner for it.
- Government should understand the importance of the IT industry. Putting focus to

local R&D encouragement and support. Building up technology resources is a long term investment. It may appears not all investments will ever turn into a positive return. But the game of technolgy invention is meant to be like this. It is not like a short term trading business. The way of looking at proposals should be changed as soon as possible. With the current mind-set of assessors, it will continue to hurt local technology industry.

6.Education related issues with IT industry

As the government is planning to reduce financial support to education. I would like to make a few comments. Education is really an investment rather than expense. Reducing financial support to education is like destroying the future of our society. However, I do have some suggestions to balance out the expense in IT education according to by own observation as I am the advisor for two universities of Hong Kong.

Low awareness of commercial software engineering practice

Commercial software engineering is a non-technical exercise. Hong Kong IT education always not facilitating on documentation and communication rather than a pure technical focused training. However, communications and documentation skills are the most important in a commercial software development environment. HK students tends to have a low skill set in software engineering, one main reason is because HK students did not come from a native English background. Prohibiting them from writing documentation.

Low awareness of respect to intellectual properties and copyright laws

HK students have a low awareness on software copyright. Over 90% of IT students use pirated software at home. Since universities and educational organizations promote the use of commercial and proprietary applications in educational materials, this cost for students to purchase the equivalent software at home is high. Also, it is still non-criminal offense on using pirated software at home, which accelerated piracy of computer software. This became a serious issue in our society as IT students will eventually become IT professionals or even R&D engineers in the future. By not recognizing and respect to intellectual property rights, it leads to under value of computer software from the public and destroying the high tech image of the Hong Kong City. Eventually, will loose of confidence for technology investors to Hong Kong due to the perception of bad ethical and professionalism of the public.

Low awareness of open software technology

As already mentioned, education materials and examination materials are now full of brand names and proprietary materials. Engineering students also tends to build up their skills on proprietary platforms and brand names rather than learning a generic technology and fundamental concepts.

Large quantity and low quality education

Education has been improving in terms of volume but not quality. Evidence shows that our English level of students has been falling for the past 20 years. As English is the most important language in IT industry, this implies IT students quality is also falling.

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Suggested actions

- Enforcing students in contributing open source software projects. This can not just improving their technical skills on open source software technologies, also increase the English and team work collaboration skills. As most of the open source software projects are done by multi-national and people on the Internet. It is a great chance of students to improve their skills in many areas. Universities can also put this as an assignment, setting up the requirement as the need of the university so that the school can save money from buying software by using the student' sresults. This is a complete win-win policy.
- Using open source software in education. Lowering the cost for students to use the same piece of software at home. Vendor neutral technology training rather than "customer" training.
- Revise the outline of education material for primary and secondary schools of computer subjects, remove all proprietary ingredients and promote open software technologies in education.
- Improve of quality, raise examination and certification standards rather than lowering the difficulty of exams year-by-year. It is meaningless to give everybody an "A" or a "Pass" without considering the quality of results. The technology industry really needs quality human resources, not quantity as unemployment of technology graduates from figures really reflects the truth.