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TEQUE powua

The idea: Power to Everyone…

Mission

- Powua's mission is to give everyone the possibility of using a Super Computer **anywhere**, **quickly** and at **low costs**

Idea

- Powua is a **Super Computer** accessible to end users through an **internet visual interface**

Technology

- Powua is a **Linux** Cluster composed by multiple computers working in parallel to process CPU intensive tasks with an enhanced visual interface supporting 3D online and highly optimized for easiness of use

Market

- Powua's **customers** are distributed **worldwide:** Public and private research centers, University teachers and students, 3D professionals and simple users, software developers which can access **immediate** and **low-cost high-performance processing**

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Potential customers

Powua customers are clients who need to perform cpu intensive tasks.
Some examples are:

- **University and Private Research**: molecular studies, genetics, chemistry and physics, biology and biophysics, environmental sciences, geophysics, quantum chromodynamic, engineering, mathematics, economics, statistics, and astrophysics

The identification of human Genome is one example of university researchers' Cpu Intensive processing

Human Genome

- **3D and Rendering**: graphics and video industry (commercials, special effects, post production)

Actual image

Renderized image

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Potential customers

- **Streaming (Audio and Video) Unicast and Multicast** *Applications such as audio and video conferencing and transmission of live or recorded events using audio and video are only two of the many applications that blend multimedia and networks. Firstly data - such as audio - cannot tolerate delays in delivery. The demand for streaming media has risen due to the steady increase of available bandwidth to home and business users alike. Multimedia streaming services must therefore process high numbers of concurrent users whilst providing a reasonable quality of broadcasting. In addition, resilience through multiple streaming servers will ensure that the broadcasts will remain available to subscribers regardless of server failure.*
- **Formats conversion (Audio, Graphic and Video)** *Many users cannot convert their huge file collections in more performing formats due to the time this operation requires. For this reason and due to instability, many archives remain literally sitting waiting for a mass conversion which is impossible to perform with a normal computer.*
- **Security (Honey Nets and Penetration Testing)** *Security is a matter of testing: no network infrastructure can be considered reliable without having successfully passed massive penetration tests. Using a simple computer to perform these tests can be extremely hazardous due to the short response times sysadmins must have in some situations. Using a cluster of computers to simulate mass attacks and honeynets (computers purposely made vulnerable to verify the effects of hackers' attacks) are a key process in the definition of many companies and SME network policies.*
- **Compiling and software production** *Building software from sources can take hours (depending on the complexity of the sources). Many software projects could enormously benefit from a simple and reliable super computer which aids users addressing and correcting bugs in a shorter time, without waiting the "normal" building time as on "normal" pc's. Building the Linux kernel can take 40 minutes on a very modern personal computer and one or two (1 or 2 minutes) on our infrastructure (depending on the number of cpu's used).*
- **Architectural and Prototype modeling** *In most cases computer modeling and simulation has become more practical, fast and low cost than building real prototypes especially in the architectural and prototyping.*

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Why now

Introduction

- *Supercomputers. In today's rapidly evolving world of information systems technology, the word itself still implies something almost futuristic. It also implies something very large, very powerful, very complex and very expensive. Both of these images contain a great deal of truth. The supercomputer industry is an industry that has undergone a great deal of transformation in the last ten years or so; from one of essentially U.S. domination to one of a globally competitive environment Exploring the industry today (including how it evolved), as well as the prospects for the future for european supercomputer firms is like to identify areas where the European Government should play a different, or perhaps expanded or lessened role in this industry..*

What is a Supercomputer

- *Although supercomputers have been in existence for many years, and the term is used universally, the definition of what a supercomputer is remains rather nebulous. It has also remained this way for many years. In a 1983 hearing before the House Committee on Science and Technology Dr. John Gibbons, at the time Director of the Office of Technology Assessment stated, "In short, supercomputers are the largest, most powerful computers currently available." This basic definition has been maintained over the years, as evidenced by the definition in the 1987 book The supercomputer is the most powerful computer available at any given time." This definition, however, has caused confusion over the years because it necessitates comparisons. This problem is becoming more prevalent today with the advent of minisupercomputers, high-performance workstations, and special-purpose computers. Such a vague definition also can cause problems when policies for the industry are defined. It is important to ensure that the appropriate policies target the right component of a very diverse industry; i.e., the information systems industry. Even though there are potential problems, there isn't a better definition of supercomputers. When discussing supercomputers in this project, we will be referring to the fastest and most powerful computers in terms of performance -- i.e., speed, accessible memory, etc. Speed is most often the identifier of a supercomputer as well as a comparative measure of its performance. One baPOWUA measure of computer performance is the rate at which it carries out floating point operations, essential for accurate, high speed mathematical calculations. The counter for this is FLOPS, which stands for floating point operations per second.*

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Why now

What are the uses for Supercomputers?

- *Because of the extreme speed of todays supercomputers, it would seem that they would be everywhere and used for almost everything requiring a large capability for compute power.*
- *However, it is important to remember that supercomputers are not universally superior and not always the most cost-effective tool. For many purposes, computers with more limited capability are as good, or better, and are likely to be easier to use. Even though they are not suitable for all purposes, super- computers have many varied uses and in todays world are an absolute necessity for many tasks. First used for cryptography and nuclear phyPOWUAs, supercomputers are quickly becoming indispensable to virtually every branch of science and engineering. Their ability to simulate all phyPOWUAal phenomena provides a new scientific method that joins theory and experimentation. Future applications in science alone are immense and the potential is almost limitless. The hyperfast machines can model virtually any phenomena in the phyPOWUAal world that can be described with mathematical formulas from subatomic collisions, to the Earth's warming atmosphere, to quasars at the end of the universe.*

Description

- *POWUA mission is to allow a Super Computer to be used quickly, in anyplace and at reasonable costs. POWUA is a Super Computer that is accessible to the end user through a visual interface and via an Internet connection, a Open Source based Cluster, consisting of a set of computers operating in parallel, that allows the processing of operations requiring intensive use of computing power; this is all equipped with a visual interface that also supports 3D applications and is easy to use. Potential users are present worldwide: Public and private research centers, University professors and students, 3D professionals and amateurs, software developers, who with POWUA manage to obtain immediate access, at reasonable prices, to a very fast system.*
- *POWUA is a Open Source Cluster (a set of computers that operate in parallel to process operations that require intensive use of computing power) that, through a connection to an Internet site, allows the end user to access this technology and pay only for the time it is actually used.*
- *The POWUA user needs only to download a piece of software (multi-platform: Windows, Apple-Mac and Open Source) that allows the uploading, processing and downloading of his/her work. This all takes place in a very simplified way without particular technical knowledge being necessary. At the user's request and after s/he has made the reservation and payment, a set of computers automatically configure to form a Super Computer and then a remote desktop appears on the user's video screen to allow the user, from wherever in the world s/he is, to be able to work on a computer that has considerably greater computing power than normal personal computers.*

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Description from the user's perspective

Ability to meet needs

- *Even though the buzz about eScience often focuses on massive hardware, user interfaces, storage capacity and other technical issues, in the end, the ability of eScience to serve the needs of scientific research teams boils down to people: the ability of the builders of the infrastructure to communicate with its users and understand their needs and the realities of their work cultures.*
- *Easy to access. Multi platform client with remote desktop. Preconfigured software.*

To use POWUA needs:

- *A Computer*
- *An Internet Connection*
- *Software: POWUA Client*

Steps to use POWUA:

1. *Access Subscribe and download Client from the POWUA Web Site.*
2. *Choose processors and hours from the calendar*
1. *Upload the files (all the connection for the upload and download of our users files are made sure using the security protocol SSL).*
4. *Use the computing power chosen to work*
5. *Download all the results*

POWUA Web Site home

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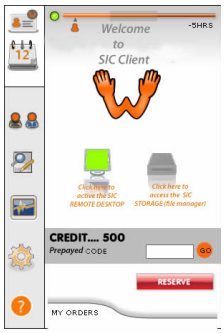
Description from the user's perspective

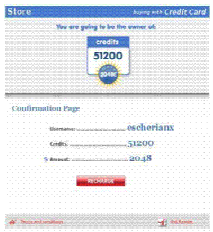
POWUA Client

1. *to upload/download files*
2. *open the Remote Desktop*
3. *open the Status Page*
4. *book computational power on the calendar*
5. *chat with other users ask support*
6. *ask support*
7. *view Stats*
8. *create plug- ins*
9. *about the client*
1. *see the story of the last orders ordered by the date of reservation, the number of cores, remaining credits*



POWUA on-line Store : to buy computational power

- *Credit card*
- *Pay- pal*
- *others*



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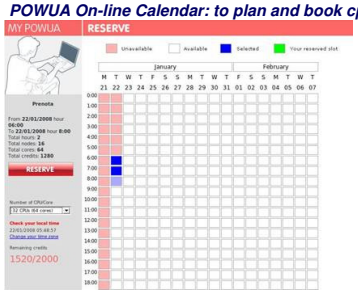
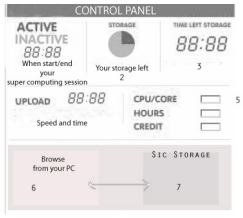
Description from the user's perspective

POWUA On-line Calendar: to plan and book cpu /hours



Users Control Panel (Status Panel)

1. *when start/end super computers session*
2. *storage left*
3. *time left storage on POWUA*
4. *time left upload /download*
5. *status cpu, hours and credit booked*
6. *users file manager*
7. *POWUA file manager*



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Expandability

POWUA has been designed and developed with expandability in mind: by using free software POWUA states its will to be open to changes and improvements:

- *it is easy to install new softwares: the chosen operating system Debian Open Source provides repositories with thousands of software packages ready to be installed, and with the help of FAI (Fully Automated Installer), the deployment of a new software on all machines is a matter of a simple 'software update';*
- *in case of need of a greater computing power, new machines can be added in;*
- *at any time and be available in the booking schedule in a short time. The installation is managed by FAI and the configuration of the machine as a front end or node is made appropriately;*
- *storage capacity can be increased in every moment too, by registering new Lustre OSTs;*
- *operations needed to set up new services can be added at every step of cluster configuration;*
- *the POWUA Desktop can be customized on a per-user basis, to let the user find all his/her favorite tools and software programs quickly.*

Why POWUA is based on Open Source

We chose to build POWUA on Open Source because it is an Open Source and for many other advantages:

Hardware flexibility

- *Computer technology jumps forward every year and few technologies have moved as fast as general purpose computing. In this environment, making the right decision about the platform is not always an easy choice. There are many compelling reasons why we use a Open Source solution including exceptional gains in performance and reduced cost of ownership.*
- *Proprietary hardware solutions offer little flexibility in when and how upgrade.*
- *When new hardware-dependent features are introduced, you must upgrade your hardware; there is no flexibility to enable you to install new software on your existing platform. In addition, the costs of the upgrades, as well as just maintaining the system, are generally higher. Is a significant hurdle in that switching to a next generation platform typically involves throwing out the entire system and having to learn an entirely new application.*
- *The cost of hardware support for specialized or proprietary hardware systems can be significant. Hardware maintenance costs for Open Source servers are much lower and can offer substantial support cost savings.*

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Open source advantages

- *An added advantage of Open Source is the ability to independently upgrade hardware components such as graphics cards, which are increasingly affordable. As a result, your facility now has more flexibility in how to upgrade. Instead of spending large amounts every year just maintaining hardware system, we can invest the same money to upgrade our facility's capabilities: we can maintain software up-to-date while choosing not to upgrade our hardware, we can upgrade particular hardware components or subsystems therefore extending the life of the entire server while increasing its performance, or we can upgrade our computer farm to the latest and most capable technology. With these options, the long-term cost of maintaining our facility current is significantly decreased.*
- *Hardware purchases and upgrades, including servers, storage, networks, clients, and other.*
- *Software purchases and upgrades, including O/S and systems software, middleware, applications, tools/libraries/compilers, in-house developed, and other.*
- *Facilities spending, including building/floor space, power consumption, cooling, and other.*
- *Staffing, including system managers, maintenance personnel, systems programmers, applications programmers, user services consultants, and others.*
- *Services purchases, including maintenance and repair, external training, programming, and other.*
- *Utility/Outsource: purchases of computational capacity/capability through an external utility-based service, including raw cycles, applications support.*
- *Use "normal" tools and not bent to custom interfaces.*
- *Technology owner, every single line of code is in possess of Xteque or already available.*
- *Open Source technologies are in a way "self improving" and you get the latest versions for free. For most of the Open Source technologies we use (Mono, Postgresql, Java) there are many commercial companies giving support and men's power on demand.*

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S/T methodology and associated work plan

- *Computer source code is simply a set of instructions that describe how to build a computer program—analogous to a blueprint for a building. Source code is invaluable to a computer programmer who wants to understand how a program works, to extend the program, or to fix it. Recognizing that source code had tremendous value, academic computer scientists were among the first to share their code, making it available for scrutiny by their peers. Since then, open-source software development has become central to the existence of the Internet. This form of development is driven by its ability to harness legions of programmers working on problems in common.*
- *A recent and popular example of the open-source approach to software development is the Open Source project. This project endorses peer review but has an additional feature—a license to guarantee that anyone who uses the software is free to modify the source code for his or her own purposes. If a particular modification proves useful, its author is free to distribute that modification to others, who, in turn, are free to make further modifications.*
- *Even in our competitive private system, managed super computing organizations that are in direct competition with one another have significant incentives to participate openly in the development of information technology standards. Failure to participate may mean that an organization remains silent or lags behind important new developments in the industry. In the software industry, Internet standards have emerged largely because the stakeholders have the choice of either participating in development or being left behind. For example, the World Wide Web consortium is an organization devoted to providing open technology standards for the Internet. Its members include technology leaders such as Microsoft, Sony, and Sun Microsystems. One of the primary motivators for these companies is the opportunity to ensure that the open standards are in line with the companies' respective business models.*

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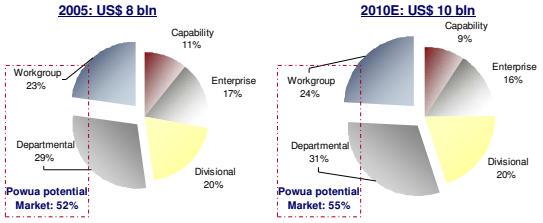
High-performance computing demand (Total addressable market "TAM")

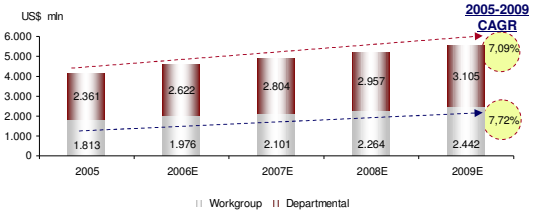
- The high-performance computing (HPC) market is a good proxy to analyze Powua's potential markets
- 2005-2009 revenues CAGR high-performance computing (HPC) market is approximately estimated at 6,0% growth[1]
- The IDC's segmentation of the HPC is :
  - Technical capability: systems configured to solve the most demanding problems
  - Technical enterprise: systems sold for $1 million or more
  - Technical divisional: systems sold for $250,000-$999,999
  - Technical departmental: systems sold for $50,000-$249,999
  - Technical workgroup: systems sold for less than $50,000

Powua potential Market

HPC market breakdown by segment



Departmental and working group segments trends



Powua aims also to satisfy the demand of individuals who cannot afford the acquisition or setup of HPC…..

(1) Worldwide High-Performance Technical Computer Server 2005-2009 Forecast. IDC May 2005

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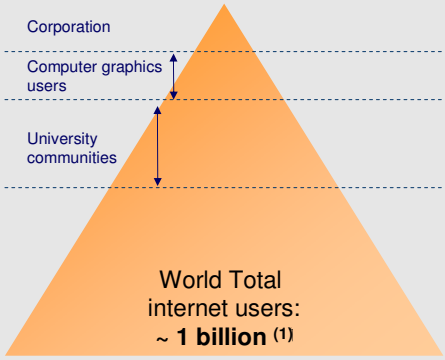
Market analysis

- Internet accounts worldwide approximately **1 bln users**
- Part of Internet users access to supercomputers daily for their business
- A large part of Internet users would use supercomputers if easily available and cheap
  - University Community Users (Students, PHDs, Master, etc.) (2)
  - Professional Users (Graphics Developers, Architects, etc.)
  - Big Corporations to outsource some activities
- Estimated supercomputer demand is at least **4/5 million worldwide**

Powua potential market



(1) Internet world stats, 31 March 2006

(2) Italian students attending scientific faculties account for 1 mln in 2006

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Comparison with main competitors

- Powua's offer is different vis-à-vis main competitors in terms of:
  - ✓ **Potential use:** Competitors only provide aggregated service while Powua gives users exclusive access to the rented machines
  - ✓ **Flexibility:** Competitors require the use of very technical and ultra specialized software. Powua's users can install any software they wish including self developed software
  - ✓ **Usability:** Powua's user interface is desktop-like while competitors use a command line interface (e.g. shell access). Powua users' desktops becomes the Super Internet Computer desktop in the most intuitive way thanks to Powua software and Linux hardware and software infrastructure

	Powua	Tsunamic Technologies Inc	Sun microsystems	remote | render	RenderCore	ResPower	CINECA
•Features:							
➢ Rendering	☑	☐	☑	☑	☑	☑	☑
➢ Scientific cluster	☑	☑	☑	☐	☐	☐	☑
➢ File conversion	☑	☐	☑	☐	☐	☐	☐
➢ Visual access	☑	☐	☐	☐	☐	☐	☐
•Flexibility	●	◔	◔ (1)	◔	◔	○	○
•Usability	●	◔	◔	◔	◔	○	○

(1) It works only with Solaris, Sun's operative system

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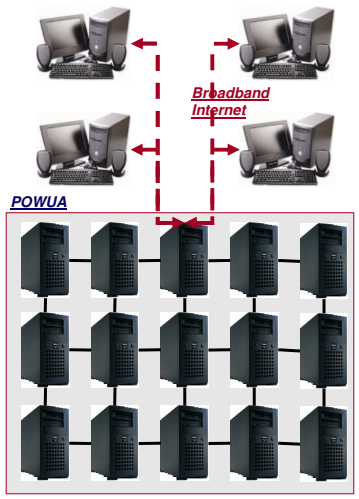
Project description

- Powua is a **Linux Cluster** (multiple computers working in parallel to process CPU intensive tasks) through a B2C Internet site which allows the end user to access this technology **on a pay-per-hour** basis
- Many computers automatically link together in seconds forming a Super Computer and - immediately after payment - the remote screen appears on the clients' desktops - wherever they are in the world – enabling cpu intensive processing **otherwise impossible** by means of a **"normal" personal computer**
- Powua's mission is to give **anyone the possibility of using a Super Computer**
- The service is targeted to **individuals and business who cannot otherwise access this technology due to its high entrance fees and costs**
- **Powua users download a simple software** (multi platform: Win, Mac and Linux) which allows them to upload, process and download their works easily with no technical hassle

How Powua works



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Business model

Revenue Model

- We imagine Powua as an hotel. In fact, we rent cpus as hotel holders rent rooms, main difference is that "our rooms" (cpus) are customizable in terms of dimension (nr of cpus rented) and features (software already loaded on CPUs)
- In that sense the main parameter we look at is the load factor:

$$\frac{\text{nr of cpus rented}}{\text{nr of total available cpus}}$$

- Our revenue are estimated as the product of the price per the load factor

Pricing

- We assume 1,5 € per each cpu/hour rented.

Sales & Distribution model

- Our customers can use Powua services only after having charged a prepaid account. If they have enough credit, they can book their hours through an online calendar

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Management track record

Communication

- Marco Ghirlanda: After a degree in Science of Communication he has leaded Opensourcelab (European research project) and he is the inventor and main developer of the Mediainlinux project and it's continuation ArtistX, two GNU/Linux versions for Multimedia production extensively used in many countries of the world.

Technology

- Studio Associato Di Nunzio e Di Gregorio: Main Developers have an extended background both in research and production in the GNU/Linux environment. Some of their projects include the Torino Scienza website, PsycoPG a PostgreSQL Python driver used at NASA and part of the national public network infrastructure of Mozambico on behalf of the Italian government. Mr Di Gregorio and Mr Di Nunzio are teaching professors at Politecnico di Torino, they are two of the main Italian experts of Linux environment, in particular Mr Di Gregorio is one of 3.000 world wide authorized Debian developers

Legal

- Pietro Nocita: CEO, after degree in Law he has started a collaboration with the department of Aesthetic at Politecnico di Milano, has a strong knowledge of technological and communications legal implications. He's collaborating with Xteque s.r.l. following all legal and trademarks aspects.

Economics

- Marco Armenante: Consultant, after a degree in Economics at Bocconi University in Milan has been working for Lehman Brothers, Credit Agricole Indosuez and Capitalia M&A department.

Business angels track record

Giacomo Garbuglia

- Giacomo Garbuglia: Former Head of Capitalia Large Corporate Department, he has been working for KPMG and Lehman Brothers. He has provided to Powua project approximately 500.000 Euro

Studio Associato Di Nunzio e Di Gregorio

- Di Nunzio and Di Gregorio have provided to Powua project with a software valued approximately 150.000 Euro

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Strategy

Our goal in five year is to be a leading venture in High Performance Computing on demand

We target both SME and Mass Market, for slightly different software and hardware combinations.

In order to achieve our target we will focus on three main aspects (Software, Hardware and Communication):

		Strategies	Actions
Software	Free software	1. maintain and improve our state of art - we have a multi platform client and a reserve system that are now the most advanced and user friendly in the world 2. be a strong actor in the HPC software development community	1. Grow from 4 developers (2 full time and 2 part time) by 2 developers every 6 months. Add in-house web developer, system administrator and media maker. 2. Sponsor target developers on HPC topics, especially on Linux platforms.
	Commercial software	1. Install commercial software to target ready to by markets 1. Build commercial relations with software vendors	1. Acquire licenses for 3d software, scientific software and streaming software
Hardware		1. Improve our hardware in number & quality 1. build solid relationship with hardware vendor	1. Increase our farm up to 1000 CPU at 5° year 1. Follow technology
Communication		1. Build our presence on the web 1. Build a community: sponsorship and user demand target development	1. forum, blog, portals, international events 1. developers exclusively dedicated to user demands

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Financials

Till now we have invested approximately 600.000 €. for the software development, hardware equipment, I.Net housing services, for patents and trademarksand for other expenses (legal, wages, communication, graphics etc).

Main projections assumptions

Revenues

Our conservative assumptions imply a average factor starting of 60%. We assume a the following pricing grid

Nr of hours acquired	12	24	48	96	250	500	1,000	5,000
Price CPU/Hour	1.00	0.90	0.85	0.80	0.70	0.60	0.55	0.50

Average price is equal to € 0,80 per hour

Costs

Housing, we assume appox. € 115 per computer per month

Personnel, we assume to hire in the first year 2 person for help desk. Credit card fee 3% of total sales, SG&A 3,5% of total sales

Projections

Income statement	Year 1	Year 2	Year 3	Year 4	Year 5
€					
Sales	**200,585**	**267,446**	**267,446**	**267,446**	**267,446**
Cpu number	*64*	*64*	*64*	*64*	*64*
CPU/Hours sold per month	249,480	332,640	332,640	332,640	332,640
Average load factor	*60%*	*60%*	*60%*	*60%*	*60%*
Costs					
Housing and colocation	(87,600)	(87,600)	(87,600)	(87,600)	(87,600)
Credit card fees	(6,018)	(8,023)	(8,023)	(8,023)	(8,023)
Personnel	(74,880)	(82,368)	(90,605)	(99,665)	(109,632)
Help desk	*(74,880)*	*(82,368)*	*(90,605)*	*(99,665)*	*(109,632)*
Technicians	-	-	-	-	-
Others	-	-	-	-	-
SG&A	(17,900)	(19,690)	(21,659)	(23,825)	(26,207)
Powua ordinary maintenance	-	-	-	-	-
Total costs	(186,398)	(197,681)	(207,887)	(219,114)	(231,463)
EBITDA	**14,187**	**69,765**	**59,559**	**48,333**	**35,984**
EBITDA margin	*7%*	*26%*	*22%*	*61%*	*64%*
Amortisation	*(24,741)*	*(26,287)*	*(26,287)*	*(26,287)*	*(24,887)*
Depreciation	*(40,000)*	*(40,000)*	*(40,000)*	*(40,000)*	*(36,667)*
Depreciation & Amortisation	(64,741)	(66,287)	(66,287)	(66,287)	(61,553)
EBIT	**(50,553)**	**3,478**	**(6,728)**	**(17,954)**	**(25,570)**
EBIT margin	*n.a.*	*1%*	*n.a.*	*n.a.*	*n.a.*
Financial costs	(26,651)	(42,466)	(26,736)	(8,063)	-
EBT	**(77,205)**	**(38,988)**	**(33,464)**	**(26,017)**	**(25,570)**
Taxes	(949)	(3,348)	(3,271)	(3,187)	(3,278)
% of EBT	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a*
Net earnings	**(78,153)**	**(42,336)**	**(36,735)**	**(29,204)**	**(28,848)**

Balance sheet	Year 1	Year 2	Year 3	Year 4	Year 5
€					
Intangibles	106,696	80,409	54,121	27,834	2,947
Tangibles	160,000	120,000	80,000	40,000	3,333
Fixed assets	**266,696**	**200,409**	**134,121**	**67,834**	**6,281**
Net working capital	**44,187**	**44,187**	**44,187**	**44,187**	**44,187**
Net invested capital	**310,883**	**244,596**	**178,308**	**112,021**	**50,468**
Shareholders' equity	**221,847**	**179,510**	**142,775**	**113,571**	**84,723**
Debt	89,036	65,085	35,534	-	-
Cash	-	-	-	(1,550)	(34,255)
Net financial position	**89,036**	**65,085**	**35,534**	**(1,550)**	**(34,255)**
Total sources	**310,883**	**244,596**	**178,308**	**112,021**	**50,468**
check	-	-	-	-	*(0)*

Cash flow	Year 1	Year 2	Year 3	Year 4	Year 5
€					
Net earnings	(78,153)	(42,336)	(36,735)	(29,204)	(28,848)
Depreciation & Amortisation	64,741	66,287	66,287	66,287	61,553
Delta NWC	(22,287)	21,900	21,900	21,900	21,900
Operative cash flow	**(57,600)**	**23,951**	**29,552**	**37,083**	**32,705**
Investments in CPUs	*(200,000)*	-	-	-	-
Patents and trademarks	*(30,601)*	-	-	-	-
Graphics	*(14,351)*	-	-	-	-
Software	*(24,600)*	-	-	-	-
Licenses	*(27,200)*	*(27,200)*	*(27,200)*	*(27,200)*	*(27,200)*
Others	*(34,685)*	-	-	-	-
Total investments	(331,436)	-	-	-	-
Cash flow post investiments	**(389,036)**	**23,951**	**29,552**	**37,083**	**32,705**
Dividends	-	-	-	-	-
Equity injections	300,000	-	-	-	-
Cash flow before debt repayment	**(89,036)**	**23,951**	**29,552**	**37,083**	**32,705**

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S.W.O.T.

Strengths

- Based on Open Source software **(GNU/Linux):** no license fees, customizable and rock solid
- Expanding demand of high performance computing
- Very **easy** access through a point-and-click user experience
- Users can install their own software
- Satisfaction of the demand of individuals who cannot afford the acquisition or setup of HPC
- Possibility to outsource fixed costs for current HPC users
- Made by Linux developers

Weakness

- Some commercial and popular software **do not operate on Linux yet** (e.g. Adobe)
- Super Computers are not available on Mass Market (until Powua?)
- Normally users do not use Linux clusters or even know about their existence
- Hardware high obsolescence rate
- Single point of faliure

Opportunities

- Possible **partnerships** with software producers that could include a "rent the software when you need it" sell strategy plus demo mode
- Worldwide distribution
- Became the forge and test bed of HPC open source software
- Open Powua's high speed access points (internet cafè like)
- Potential uses by mass market

Threats

- Big actors could replicate the business, patent application made to protect
- Confidentiality of data processed on Powua's Super Computer


powua
The Super Internet Computer
www.powua.com