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### **Driving the boundaries in the knowledge age – the boys and girls clubs of king county techmobile**

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#### ***Abstract:***

*Rapid increase of technology has widened the gap between the haves and have-nots. Bridging the digital divide has been a wide spread topic of discussion. An explanation of the Techmobile Project as the Boys & Girls Clubs of King County solution to bridging the local digital divide.*

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#### **Background**

The Boys and Girls Clubs of King County faced the challenges of budget constraints, space limitations and the costs associated with placing computer labs in each of their sites. Placing a computer lab at each site was a great idea but an expensive endeavor they could not undertake at all facilities. Not an organization to be easily discouraged, they began to think about alternative solutions to providing computer labs at each site. From this a vision took shape. How about having a computer lab on wheels that would allow the technology to go to communities that do not have access to computers and the Internet due to space or monetary restrictions? This would allow the Boys and Girls Club to provide a cost-effective mobile solution to the technology needs of the children in King County. From this vision of technology plus mobility, the Techmobile was created. Technology to the Boys and Girls Clubs of King County would be delivered on wheels!

This paper will discuss the journey taken by the Boys and Girls Clubs of King County toward the goal of mobile technology.

## **Introduction**

Mobile services in the form of boats, donkey carts, buses and others are not new to the world of librarianship. As patrons become increasingly exposed to computers in their daily lives, librarians look for ways to ensure that those who receive mobile services have access to services similar to those who frequent physical buildings. In the last few years, librarians have looked to adding computers to their mobile service units. Computers in mobile services were first used for circulation and OPAC services and more recently have encompassed Internet connectivity. Mobile services have piqued the curiosity of libraries and sent many hurtling down the technology path. Having a mobile unit with Internet connectivity has become an item high on the agenda of libraries that provide mobile services. Libraries and other organizations that offer public services are eager to convert/add to their mobile services. How to achieve this and stay within a library budget as well as maintain a viable Internet connectivity solution has become a challenge faced by all. The Techmobile project is an example of a technology solution that could help librarians make a difference in the Knowledge Age. It is hoped the discussion of these trials and tribulations will be of help to those thinking about starting a mobile computer service or expanding existing OPAC services to offer Internet access.

## **Who They Are**

The Boys & Girls Clubs of King County's mission is to inspire and enable all young people (ages 5 – 18), especially those from disadvantaged circumstances, to realize their full potential as productive, responsible, caring citizens through specialized programs and services. With ten full service clubhouses, twenty-four child-care facilities and fifteen school-based programs and numerous extension sites in Seattle and King County, the organization is one of the largest of its kind in the nation, serving over 17,000 members. Program areas offered to youth include character and leadership development, teen programs, drug and alcohol prevention, education and career development, health and life skills, the arts, computer training, cultural enrichment programs, sports fitness, social recreation, before and after school care, youth employment, career training, homework assistance, summer camps, and more. The Boys and Girls Club's goal was to create a computer lab with Internet connectivity that could drive to any of the Boys and Girls Clubs, schools, housing complexes or other buildings to be used by the members of the organization or community. This computer lab would bring countywide opportunities and education skills in computer education to the King County Boys and Girls Club members, an opportunity they otherwise would not have. The vision was to introduce, inspire and educate King County residents to become computer proficient with an emphasis on those who are low-income, minority and/or limited English speakers. The challenges the Boys and Girls Club of King County faced were how to fund, design and build a mobile computer lab. A key part to achieving their goal was establishing partnerships.

## **The Partners**

In 1998 Microsoft created a partnership with the Boys and Girls Clubs of America to help bring technology centers to clubhouses all over the United States. As a result 15 test sites were created, one of which was the Boys and Girls Clubs of King County. In collaboration with Microsoft, the Bill and Melinda Gates Foundation committed to provide all 15 sites with the Gates Library Computer configurations, training and technical support to these sites. The Boys and Girls Clubs of King County wanted to have a unique computer lab, one that could service its entire member base, not just those that could make it to one location. Microsoft's donation would be used to purchase a 30-foot Winnebago. Having secured the funding for the vehicle the Boys and Girls Clubs of King County still needed technical expertise to implement the project and support to purchase computer equipment. Another important financial consideration was to ensure ongoing technical support. These factors were all crucial to completing the project. They approached the Bill and Melinda Gates Foundation's Community

Access to Technology division with their proposal to bridge the digital divide by providing mobile computer access to the children of King County via the Techmobile, a mobile computer lab. The proposal was accepted and the Bill and Melinda Gates Foundation committed to creating the technical design, as well as providing appropriate hardware and software, training, Internet connectivity and technical support. Other partners included AT & T, Car Toys, City of Seattle, GM Nameplate/ XL Graphics, and the Medina Foundation.

## **In the Beginning**

The Winnebago, soon to be referred to as the Techmobile, was delivered to the Bill and Melinda Gates Foundation in July 1999. In the beginning it was an empty shell stripped of all amenities except for an air conditioning unit, heater and generator. Staff gathered around the 'white whale' as it was soon to be dubbed and began to imagine the possibilities for the Techmobile. Over the next few months the Boys and Girls Clubs of King County vision of a mobile computer lab was transformed into a reality. The following is a brief description of the transformation process.

## **A Vision Becomes a Reality**

The first step was wiring the Winnebago for data and electricity. The limited space combined with the fact that the users were children meant that a creative solution for keeping the wires out of reach was needed. The most effective solution was dual channel G4000 Raceway. The Raceway would allow the electrical wires to run in the top portion while the data cables run in the lower section. First the empty Raceway was fastened to the perimeter of the interior of the Winnebago. Next the wires were inserted and tested prior to the Raceway being closed. This product was an excellent solution for space saving and wire protection and safety along with safety for children, no exposed wires to trip on. Beware! Although it is an excellent space saving and wire-hiding solution it has one major drawback, once the Raceway is in place, getting to the wires is not an easy project. The Techmobile was wired for forty ports although only fifteen are in use.

Once the wiring was completed the desks were assembled and a custom built cabinet was installed. The custom cabinet was placed at the back of the Winnebago. It has a twofold function second to store the server and hub behind closed doors away from curious fingers, and second, to be a central location for the two printers and a scanner. The desks were placed around the Winnebago to maximize the teaching space.

Next came the computer equipment installation. A Gateway ALR 7200 Server, eight Gateway Profiles and four Gateway Solo 9500 laptops were selected as the most functional for the Techmobile. The ALR 7200 was going to be utilized as a storage device for the student work as well as a print server. The Bill and Melinda Gates Foundation systems engineering department built a custom image for the Techmobile using the software and the Windows NT server and workstation operating systems Microsoft donated. The image was modeled after the Gates Foundation Gates Library Computer, the PC model created for the US Library Program, which is a customized build noted for its security features to be used in areas where there are a high volume of users. One of the main features is that the users cannot save to the hard drives of the individual workstations. The server was physically installed into the custom cabinet. Aeroflex Shock and Vibration Isolators attach the server to the floor of the Winnebago. The Isolators are a key part of the installation equipment. They keep the server and its internal components from being jostled out of place while the Techmobile is in motion. The Isolators are a key part of keeping the server safe and maximizing its longevity.

The Foundation staff then installed the eight Gateway Profile computer workstations. The Profiles are often mistaken for flat screen monitors but actually include CPU, CD-ROM, floppy drive, a monitor and hard drive build into approximately 10 inches of desk space. Given the space limitations of the

Winnebago, their compact design made them a perfect fit for the Techmobile. Not only were they space savers; they also weighed less than a typical monitor and CPU PC setup (less weight is easier on the Winnebago and fuel consumption). Avdex specially designed brackets provide dual functionality. They keep the computers stable and in place and locked to the desk. Mouse holsters are used to hold the mice and Velcro was installed at each workstation to keep keyboards in place and to minimize movement while in transit. All the Profiles used Ethernet connects to connect to the network.

Next the laptops were installed. Cisco Aironet 3 40 wireless LAN products were used to connect the four laptops to the network. The wireless PCMCIA cards replaced the standard cards in the laptops and provided connectivity to the wired LAN via radio frequency communications. The laptops are able to roam freely up to 1, 500 square feet from the Techmobile and send and receive data at a rate of 11 MBPS. The purpose of using wireless to connect to the network was to enable the laptops to be taken inside a building or used outside. The Techmobile's ability to serve users is expanded by having this flexibility.

### **It's A Wrap**

GM Nameplate/XL Graphics donated the design and application of a spectacular exterior large format graphic vinyl wrap for the Techmobile. They transformed the idea of the Techmobile into a series of images. The wrap consisted of a series of enormous stickers. The stickers were skillfully placed on and cut to fit the whole exterior of the Winnebago. The installation technicians applied each sticker individually, then heated them ensure they would adhere permanently. They also donated the interior graphics to create a welcoming but cool atmosphere for the children. The vinyl wrap is an essential part of promoting the Techmobile and spreading the word of its existence and purpose. Wherever the Techmobile goes it makes a statement and leaves lasting impressions!

### **Connectivity**

Unfortunately, at this time the Boys and Girls Club is still researching a cost effective Internet solution that fits their needs. Originally the Techmobile used DirecPC, a service that provides Internet access through private satellite dishes. DirecPC allowed the Techmobile to provide an Internet connection without being physically connected to a physical phone line. Outgoing requests for web pages (upstream traffic) went through an AT & T Wireless Cellular Digital Packet Data (CDPD) Modem. This rugged modem is used in many mobile applications and transfers the outgoing requests for data at 19.2 KBPS. However, the web pages were delivered (downstream traffic) through the satellite link at up to 400 KBPS (about 15 times faster than a 28.8 KBPS modem, and 4 times faster than an ISDN connection. A Gateway E3200 with an ISA card was placed in the luggage compartment of the Techmobile and controlled the DirecPC connection. DirecPC turned out not to be a viable solution for the Techmobile. The satellite dish had to be set with a direct, unobstructed line of sight southeast at each location. Due to the Techmobile's mobility, 85 % of the sites could not establish a connection. Given that the Techmobile serviced at least two locations daily, a lot of time was being spent trying to position the satellite.

The next Internet connectivity solution was a product called Ricochet provided by Metricom. Ricochet network consists of microcell radios strategically placed every ¼ to ½ mile in a checkerboard pattern on telephone poles. Modems communicate with the pole-top radios to transfer data. The Seattle area has 28.8 kbps service at the moment. Metricom intended to have 128 kbps services for Seattle last January. In June, Metricom filed for Chapter 11 bankruptcy protection thus leaving the Techmobile staff searching for a viable Internet solution.

### **Lessons Learned**

Numbers are not everything! The Techmobile was designed with eight workstations and four laptops in mind. But the instructors have found that often eight workstations and only two of the laptops are utilized as they have found it too difficult, given the layout of the vehicle, to keep twelve youths on track during a class. When designing the space keep in mind that it will be used for instruction. Packing in as many computers as possible will lead to the instructors having to perform gymnastics.

The reality is that mobile computer services can be brought to those who do not have access to technology. The challenge is reliable, affordable connectivity. Connectivity issues remain one of the major obstacles that discourage those who would like to expand their library services to include the Internet. The Techmobile is not a unique project. There are other organizations making a difference in the Knowledge Age by bringing mobile services with active Internet connectivity to their communities. A few examples of mobile projects are the eBus (<http://communityconnect.org/>), the Can (<http://nbfy.com/>) and the Cybermobile ([http://www.munpl.org/Main\\_Pages/Cybermobile.htm](http://www.munpl.org/Main_Pages/Cybermobile.htm)).

## **Conclusion**

The Techmobile is making a difference in learning opportunities for the children and young adults in King County. Since the Techmobile was unveiled at a press conference on October 27, 1999, it has been visiting locations in King County providing computer instruction to children. To date, over 3000 hours of lessons have been taught at fifty – sixty different locations throughout King County. Some of the classes offered are: Adobe Photoshop, Microsoft Publisher, and PowerPoint.

Originally the Techmobile had funding for one full time staff member. The proven success of the Techmobile has lead the City of Seattle to fund a second, full time position for the Techmobile. The creation of this position has allowed the staff to focus on scheduling more site visits, curriculum development and establishing and leveraging additional support from other funding sources to assure the sustainability of the initial capabilities provided by the grant. The Techmobile is meeting its goal of bridging the digital divide by providing a cost-effective mobile solution to the technology needs of children in King County. The Boys and Girls Clubs of King County and other organization, have proved that if you build a mobile computer unit, be it on a boat, in a bus or a Winnebago, the people will come.

## **References**

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