



## Message from NorhTec's President, Michael C. Barnes



**Michael C. Barnes with three Microserver High Performance (HP) computers.**

I built my first computer nearly 25 years ago. I spent \$2,000 USD and worked for three months to build a computer that only had 2 kB of RAM. It featured Tiny Basic from Motorola and ran no applications. For several years, any money I had, I poured into my new hobby, computers. No matter how much I learned, I always felt that I was playing catch-up and wondered if I could ever learn enough about computers.

Over time, I acquired enough knowledge that I could actually make a living. Everyday that I worked in the IT field, I worried that someone might notice how much fun I was having. It was hard to believe that I was actually being paid to do what I loved.

My last job in IT lasted for 13 years. I worked for Sun Microsystems. Working for Sun

Microsystems was the highlight of my career. For me, Sun Microsystems was the greatest computer company and I was proud to play a small part.

I met with a customer who was having problems with their existing architecture. The customer had built a peer-to-peer network and they were now having lots of problems with viruses and hackers. I told the customer that they simply needed to set up zones of control for their systems. I started asking questions about the customer's data center. The customer had put together a network of hundreds of computers, had multiple access points to the Internet and had no data center. I estimated that the cost to build a data center and to properly architect their organization would be about \$5 million USD. The customer asked if there was another way. At the time, I couldn't think of any.

When I returned to my office, I described my meeting to one of the systems engineers. He said he saw this all the time. He said that customers rarely plan for enough infrastructure for their IT needs. He said that building and expanding infrastructure was the most expensive investment a customer could make.

I started researching this with the idea of putting a data center in a filing cabinet. I reasoned that many of the existing computers in data centers were outdated and were taking up space and energy and could be replaced with something much smaller and more energy efficient.

After confirming that the technology was available to build the sort of computers I wanted, I wrote up a vision statement that suggested that in the next few years, computers would be in every boat, car, plane, and train and that the next build out of the Internet would occur when there were devices that could be made small enough, and energy efficient enough that they no longer needed to be kept on a desk. I believed that wireless technologies and smaller computers would dramatically change the way that computers were used.

I could not get anyone at Sun to show any interest in my ideas so I resigned to form NorhTec. Sun Microsystems was not the only organization that didn't think the idea of small, energy efficient computers was a good idea.

I contacted Barclay Hambrook in Alberta, Canada. I needed someone to help me find funding to get NorhTec started. Barclay was able to find investors willing to take a chance and we formed NorhTec.

The first year was spent doing homework. June 2003 marks our second anniversary. In two years time, we have succeeded in designing and manufacturing several innovative computers that we believe will change the way that people think about how to use computers.

Many new companies come to market with one or perhaps two new products. NorhTec has come to market with seven finished products and we are not finished yet. I am often asked why we have introduced so many products. I always tell them that you cannot be a computer company with a single product. NorhTec is first of all, a computer company.

Computers have always had several problems. The first is they are too complex. Professionals should not have to become computer experts in order to do their jobs. Doctors should be treating patients and not administering their PC. NorhTec has focused on making computers easier to use and easier to administer.

The way that computers are currently used in organizations, they are simply too expensive. Several studies put the cost of using a PC at \$9,000 USD to \$10,000 USD per year per employee. NorhTec has focused on strategies to reduce these costs.



The NorhTec Microserver GP is small enough to fit in a woman's hand

Every organization needs to have devices to act as firewalls, gateways and routers. NorhTec has created devices that perform the same tasks as expensive data center servers, yet they are small enough to fit in a woman's hand and use a fraction of the power. To save even more money, NorhTec proposes several low-cost server solutions, based both on Microsoft Windows, and Linux. Data Center firewalls can cost tens of thousands of dollars. The NorhTec Microserver GP can perform the same function for a few hundred dollars.

The NorhTec Microserver GP is small enough to be used just about anywhere. Now existing x86 based applications and operating systems can be deployed in locations never thought possible before.



The Microserver GP+ adds video in, composite video out and sound to the Microserver GP. This makes it possible to deploy solutions such as video conferencing, facial recognition or motion detection systems.



Photo showing the Microserver GP+ with one and two NIC options

The Microserver GP and GP+ can also be used as a very energy efficient thin client. NorhTec offers solutions that work with both existing Microsoft and X Windows bases servers.



NorhTec Microserver High Performance (HP) (single NIC version)

NorhTec Microservers are inexpensive, easy to deploy, rugged, x86 compatible, fully integrated, energy efficient, and silent. In addition to our Microserver, NorhTec has also introduced a new generation of desktop and office servers.



**The NorhTec Multi Client shown with the NorhTec Microserver HP**

The NorhTec Multi Client redefines the computer from the user's point-of-view. The Multi Client is small, silent, energy efficient, rugged, and highly integrated. The Multi Client, in its most basic form, can be used as a diskless workstation. It is possible to boot diskless workstations off of a Linux server and then connect to a Microsoft Advance Server using open source or commercial packages.

NorhTec offers a solid state thin client solution that will work with both existing Microsoft or Unix/Linux core business solutions.

The Multi Client can also be upgraded to be a full PC. This can be done by simply adding a 2.5 inch (laptop size) hard disk.

Implementing diskless clients is cost effective, secure, easy to administer, and reliable. NorhTec manufactures the Digital Filing Cabinet (DFC) to provide a safer way to store important corporate information. The DFC uses two hard drives instead of a single hard drive to store data. Each time a file is written, it is written to two drives at once. While this is not designed to take the place of backing up data, this strategy does provide protection against catastrophic disk failure.



The Digital Filing Cabinet (DFC) is the first Storage Area Network designed for small offices.

NorhTec's tag line is *networking out of the box*. NorhTec's DFC is an ideal example of this philosophy. The DFC is very original, but it is one of those products that makes one wonder why nobody has done this before.

NorhTec's DFC appears to be a Microsoft Windows Server on the network. The user simply locates the DFC on the Microsoft Windows Network Neighborhood. Users simply create folders and save their data in their folders.

It is possible to set up a loop back encryption system to encrypt data on the DFC. Furthermore, it is possible to use the DFC as an office server supporting critical applications and data.

The DFC is the perfect application server and file server for the small office.

NorhTec also offers desktop solutions to support typical PC environments. Modern desktop computers are noisy, energy inefficient, and large. NorhTec's desktop solutions are energy efficient, small, and quiet.

Most modern computers use very inexpensive cases and power supplies. They keep their systems operating with up to five fans. Not only are these fans potential points of failure, fans are also noisy. NorhTec designs our own power supplies and heat sinks to produce

desktops that are more reliable and quieter than other desktop solutions.

Most computer cases are generic. Our computer cases are designed and built to our specifications. Our cases are not “one size fits all” solutions. Our cases waste no space. We build systems to be as small as possible so you can use your precious real estate more wisely.



Here is an example of one of our heat sink designs

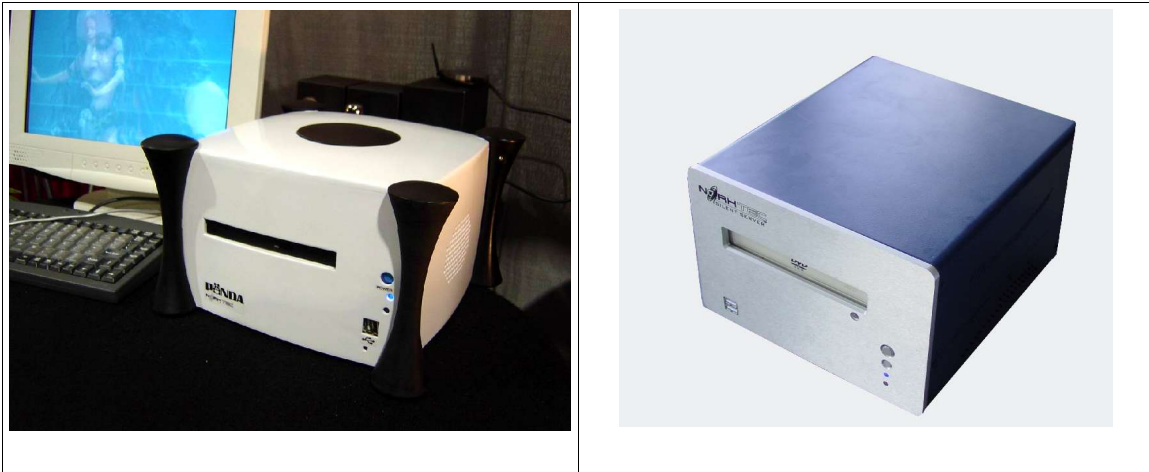
NorhTec's power supply integrates its own thermostat. Instead of building a system that requires a fan to operate at all times, NorhTec turns on a large fan mounted on the case only as required. The power supply and CPU are fanless. The case fan only comes on to exhaust heat if the temperature reaches a predetermined level. Some companies simply remove the fans and allow their computers to run under stress at all times.

Some companies have taken the approach of using laptop solutions to drive desktop PCs. They use external power supplies designed to power laptops to drive desktops. NorhTec has created their own power supply. Our power supply is fanless, internal, and robust.

Our traditional desktops are the Panda PC and the Silent Server. The Silent Server is designed for standard applications. The Silent Server is small, energy efficient, and silent. The Silent Server is also ruggedly constructed so it is ideal for environments such as factories, oil rigs or warehouses. The Silent Server is fully integrated so there is no additional hardware to purchase. The Silent Server comes standard with a DVD ROM, 256 MB RAM and a 40 GB hard disk. The Silent Server consumes only 35 watts.

The Panda PC is NorhTec's multimedia PC. The Panda PC has advanced multimedia features to include:

- SVHS (TV) Out
- SPDIF digital out (for AC 3 decoders)
- 6 channel audio
- Integrated MPEG
- Support for HDTV resolutions
- 60 GB Hard disk
- DVD/CDRW slim line combo drive
- USB 2.0 x 4
- Firewire (1394) x 2



NorhTec Panda PC and NorhTec Silent Server, energy efficient, small and silent desktops

