Summary Testimony of
Nathan P. Myhrvold, Chief Executive Officer, Intellectual Ventures

On behalf of individual inventors, scientists, and entrepreneurs I applaud the Committee for making improvement of our patent system a topic of current discussion. It is a complex and technical subject which is often misunderstood, but it is vital. The patent system is the foundation of America's technological competitiveness. Patents are the legal construct that breathes economic life into inventions by giving their inventors a property interest in them. With many other issues pressing on the precious time of Congress I am very pleased to be honored with this unique opportunity to present my perspective.

The Committee Print addresses many important and needed reforms, including improvements in the treatment of inequitable conduct, the harmonization of US patent law with international law, and the need to free Americans to invent and innovate in today's flattened global economy. Reducing the likelihood of litigation, with the attendant cost, complexity and uncertainty is a worthy goal. Litigation saps resources that small inventors could put toward more productive pursuits, like new inventions. However, the Committee Print, as drafted, can benefit from changes in some very important areas: protecting injunctive relief for the inventor, improving the examination process, true reduction in litigation, export issues, willfulness standards, post-grant opposition, and patent continuations. I fear that some of these features would have the unintended consequence of increasing litigation and putting the small inventor at a disadvantage.

This subject is a one that is important to me personally and professionally. My first and primary concern is the protection of the rights of small inventors, including universities, small businesses and individuals. We need to keep the playing field level for inventors, because America's strength is in the diversity of its inventive talent. I hope that this Committee and this Congress agree with this priority. For if the US Government does not protect the rights of the American inventor, who will?

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"Patent Quality and Improvement" before the
Subcommittee on the Courts, the Internet and Intellectual Property,
Committee on the Judiciary, House of Representatives, Congress of the United States
28 April 2005

Mr. Chairman and members of the Subcommittee, my name is Nathan Myhrvold. I am very pleased to have been asked to share my views as a scientist and inventor on the patent system with the Subcommittee. My personal history is very relevant to my remarks today, so permit me to introduce myself.

Background

As long as I can remember I have been fascinated with science and technology. I pursued science in school, earning a bachelor's degree in mathematics, and master's degree in geophysics and space physics, both from UCLA. I continued exploring other disciplines, getting another master's degree in mathematical economics and a PhD in mathematical physics from Princeton University. I would have finished school much earlier if I had focused on one topic, but to be honest I never met a kind of science I didn't like. This obsession with schooling might have consumed half my life, but for the fact that I started early, entering college at 14, and completing my PhD by age 23.

After Princeton I was hired by Cambridge University in England, working directly for Professor Stephen Hawking. My research area was quantum field theory in curved space time, perhaps one of the most obscure and esoteric scientific disciplines. At that point in my life I would have told you that I'd be an academic researcher. But life has a way of throwing us curve balls. I took a three month leave of absence from working with Hawking to go to the San Francisco Bay Area to help some friends from graduate school on a software project. Before I knew it I was caught up in entrepreneurial fever.

The year was 1984, and the software industry was still tiny. I became the CEO of Dynamical Systems, a software start up with less than a dozen full time employees. After two years of struggling to keep our heads above water, we were acquired by

Microsoft. I spent the next 14 years as a Microsoft employee, reporting directly to Bill Gates as Microsoft's first Chief Technology Officer. I could scarcely believe that I went from esoteric theories in physics to what would become the largest software company in the world.

At Microsoft I championed the development of new technology. Microsoft had zero patents and just two patent applications at the time I joined the company. I advocated increases in R&D spending, and patent filing, greatly increasing each of these. In 1991 I convinced the Microsoft board of directors to start Microsoft Research, the first major industrial research lab to be started in more than a generation. Laboratories like Bell Laboratories, GE Research Labs, Xerox PARC, and IBM Research, have made a tremendous contribution to America's preeminence in science and technology. Unfortunately, these institutions were founded 30 to 100 years ago, and there aren't many recent examples. Very few of the new giants of technology have bothered to invest in research and create similar research organizations. Microsoft Research now employs over 700 researchers in seven laboratories, and is ranked as one of the leading research institutions in the world.

I retired from Microsoft in 2000, and founded Intellectual Ventures, a company dedicated to investing in innovation and creativity in the form of invention. The venture capital community exists to help entrepreneurs start and finance new companies – at Intellectual Ventures we help and finance inventors to invent. This includes both full time employees, as well as working with inventors who are university professors, academic researchers, small businesses that cannot afford to patent without help, as well as independent inventors. I meet frequently with inventors from all ranks, and have attached a recent speech on invention given at Princeton University. Our company provides both business expertise and financing to these inventors, and provides inventors with a healthy share of the profits in their inventions.

My business career as a corporate executive has focused on managing innovation and using patents as a business asset. However, I am also an inventor with 17 issued US patents. I'm working on increasing that number; for the last couple years I have filed over a dozen patent applications a year which are still pending in the Patent Office. So, in addition to using patents in business, I am also a customer of the Patent Office and have seen the details of the patent process up close.

Given my varied career, I have seen the patent system from the perspectives of pure academic research, a giant technology company, and finally that of a small business. Each perspective offers different views on the patent system. The Subcommittee will hear from people in many of these directly through the process of these hearings. What I can offer is the views of someone who has experienced all of them.

Patents: Protecting Inventions

The patent system is a fundamental foundation of America's innovation based economy. Like any other part of the free enterprise system, the patent system offers economic incentive by allowing private ownership. In a way, this is no different than real estate, or other private assets. Private ownership of valuable assets is the basis for the American economy.

The process of invention requires large amounts of the inventor's time, energy and money. In order to create incentive for that expenditure, the inventor gets ownership in the invention for a limited time, after which it passes into the public domain. This system has been a primary driver behind the tide of innovation that has kept America number one in the world for at least the last century. The system that encouraged and sustained great inventors like Thomas Edison, Alexander Graham Bell and the Wright brothers is a critical component of America's 21st Century goals to lead the world in computing, biotechnology, nanotechnology and dozens of other exciting fields.

Small Inventors: America's Economic Engine

The leading component of America's invention output is driven by individual inventors, academic institutions, and small and medium businesses. The Subcommittee has heard testimony from large technology companies, and their trade associations. These firms are important inventors, and they frequently lead the list in terms of sheer number of patents. However what is much less well known is the substantial role that the little guy plays.

According to US Patent Office records, 45% of American patent holders are classified as "small entities" which includes small businesses, universities and individuals.

This pattern is repeated if you look in particular technology areas. I have done empirical research to understand the nature of the invention process, and found some remarkable results. It is not surprising that the entities that hold the most patents on computer processors include corporations like Intel and IBM. However, if you add them up, universities, individuals and small businesses in aggregate have substantially more processor patents than Intel or IBM – indeed more than the two combined. The same pattern is found in every technology field where I have looked. Small inventors have more operating system patents than Microsoft, more networking patents than Cisco and more wireless patents than Qualcomm.

The typical pattern in a technology field is that the top company (or even the sum of the top five or ten companies) has only a small fraction of the patents in that field – often no more than 10% of the patents. Most invention is not done by the largest companies in the field. Invention occurs across the whole spectrum of the economy – from technology giants all the way down to the lone inventor in the garage. Those lone inventors aren't just working on low-tech areas – no matter how technical a field, a huge number of patents are held by private individuals. Critics of the patent system sometimes talk

derisively about the "myth of the small inventor", ignoring their contribution. Well, I am here to tell you that small inventors are not only alive and well, but they actually contribute more inventions than the biggest corporations do.

I think that it is very important for the Subcommittee to appreciate the role that small inventors play when considering reforms to the patent system. This is because small inventors depend on the patent system far more than big companies do. The patent system is the only means for the small inventor to get a fair shake, and any semblance of a level playing field.

A large company has financial resources that a small inventor can only dream of. They also have the ability to extract value from their patents a variety of ways. Indeed many large companies use their patents only on a defensive basis – that is a polite way to say that they use their patents to maintain their dominant market positions, rather than actively use them as revenue generators in their own right.

Protecting the Small Inventor's Rights

A small inventor, on the other hand, depends almost totally on the patent system to secure his ownership rights in the invention. A small change to patent law can, as an unintended consequence, have catastrophic effects on a small inventor who depends totally on his or her patent rights to survive. A small inventor does not have huge market share and other business assets to fall back on. Worse yet, the small inventor almost invariably winds up competing with large, well funded companies that have every possible advantage. Only the patent system stands tall as the protector of the basic rights of small inventors.

Changes to patent law must be scrutinized carefully to make sure that they do not tilt the playing field in a way that further disadvantages small inventors. They do the bulk of America's inventing and they deserve our support.

Proposed Patent Reform

I applaud the Subcommittee for its interest in patent reform and I have studied the Committee Print. There are a number of needed reforms that I agree with. In the interests of being concise I will focus here on the most important areas where I think your efforts can be improved, at least from my perspective.

First, I have to be frank and say I am disappointed that there isn't more focus on what I think is the most important aspect of patent quality – namely improving the quality of the patent examination process. Most of the committee print covers rules about patent disputes, and does not address the issues with getting patents examined in the first place. Patent quality starts in the Patent Office itself.