Time for **online**?

It's not exactly news to note that the internet is pervasive. And the boom in the use of MP3 players, to name just one technology, is helping to weave the internet inextricably into our lives.

Bill Gates provided one of the keynote addresses at the recent Consumer Electronics Show in Las Vegas. Part of this presentation focused on the availability of an HD-DVD for the Xbox 360. In announcing this, Gates also noted it would probably be the last hardware upgrade and that 'everything in the future would be a download'.

Whilst this might be fine for the consumer world, how likely is it that electronics design of the future would move to a download model? Can electronics design to be conducted on the web? Immediately, we got a split between our experts – two from the supply side and one design house.

"Completely feasible," said Phil Gibson, vice president of technical selling and web tools for National Semiconduc-

Everything, it seems, is going online. But will electronics design follow? By **Graham Pitcher**.

tor. "The more reliable the network, the more feasible it is and point solutions are available for everything today. The issue is managing the white space between."

Agreeing somewhat was Steve Lane of design house Triteq. "This will be driven by the extent of the design requirements, but using supplier and other web based design tools for basic circuit design will play an increasing role in the process."

He agreed with Gibson that the key issue may be access, particularly with software development tools, where development work may be carried out in remote locations with limited communications. "In practice, working with remote tools should not present any major problems if the interface is trans-

parent to the user," he added.

In the other corner was Peter Davy, marketing manager for Mentor Graphics UK. "Not very," he believed. "Most serious design work involves very large data sets, custom databases and interfaces and is computationally intensive. All these things argue against remote design. Having said that, some applications like Mentor's Extreme PCB allow designs to be designed concurrently at multiple remote sites within a company intranet."

So how much design is being done over the web today. Gibson noted: "National's online tools currently help design engineers create roughly 20k designs a month for power supplies, active filters, signal paths and audio applications. More functionality is being enabled every month. Admittedly, this is only the analogue subset of larger complete applications, but it is significant."

"None that we're aware of," countered Davy. "Some is done on the internet in a distributed fashion, but the web isn't used
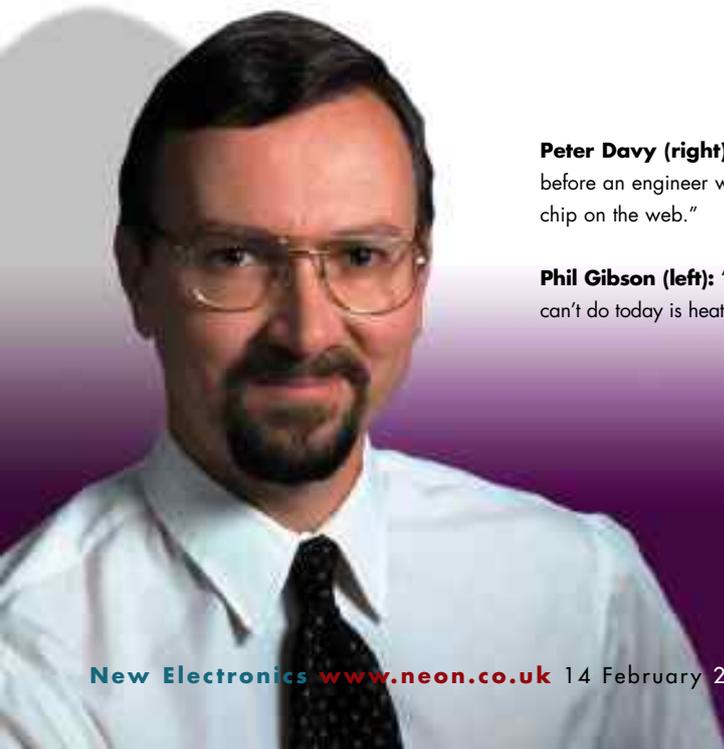
Peter Davy (right): "It will be a long time before an engineer will design a 100million gate chip on the web."

Phil Gibson (left): "Just about the only thing you can't do today is heat up and apply the solder."

as an application platform. The internet can be – and is – used for distributing data, but that's not web based design."

What about the user? "At Triteq," Lane observed, "we have not had a requirement for using remote development software, but we do use specific supplier tools where these are available."

With some web based design underway, how effective is this? Gibson believes it's quite effective. "Selection, architectural configuration, product comparisons, trade offs, analysis, circuit calculation, simulation and so on. Just about the only thing you can't do today is heat up and apply the solder."

But Davy wasn't convinced. "It isn't," he stated. "Web based applications don't support heads down, computationally intense applications."

And the user's perspective? "Web based tools from component suppliers assist the development process by enhancing the means to get a design right first time," said Lane. "Whilst these resources are limited, more suppliers appear to be incorporating web based tools into their sites. The availability of these may become a driving factor in selecting particular components or choosing a design route."

What benefits might accrue from web based design? Lane thought: "Access to remote development tools offering the power of high speed workstations will present an advantage, particularly for those with limited resources. A second benefit will be the ability to access the same design from several sites, allowing remote work by several developers."

He added the continual improvement and upgrade of remote design tools would also be an advantage, avoiding the need to keep local applications up to date.

Davy doesn't see many benefits flowing from web based design. "Someday, the tools and the technology will have advanced enough to make them viable for challenging applications like eda tools, but we don't see it happening any time soon."

Gibson highlighted what he saw as the upside of web based design. "Speed, ease of use, automatic updates and connection to the most current design resources."

So how can the process be improved? Lane gave the user's perspective: "For Triteq, access to remote development tools would require changes to our procedures, particularly for the development of safety critical designs where document control is a major factor. Security of the design data from corruption, the ability to implement strict change controls and access control need would need to be assured."

Davy, noting that he isn't sure whether there will be any business justification, thought applications must have vastly better performance and networks must support much higher data transfer rates. "But if a company cares enough to hire engineers and to do designs, then it should care

enough to have the tools they need running in their own data centre."

For Gibson, functional changes are needed, including more connection and partnerships between vendor websites. "The separation of everyone's data requires a good deal of re-entry and 'band aids' to hide complexity. However, fix this for the first user and it is free for all that follow."

Lane saw a practical barrier to web based design. "A breakdown in communications – for example the loss of an internet connection for a period of time – could bring down a complete design team."

Davy notes that Mentor has seen little interest in web based design from its customers. "We continue to work on helping companies who have globally distributed design teams, but those solutions are necessarily proprietary for the forseeable future."

Lane didn't give online design enthusiasts any comfort. "Triteq will keep under review the development of suitable tools that help make the design process more efficient and cost effective. However, our client base currently demands the design process and information required to achieve this is maintained and controlled within an enclosed environment."

The last word comes from Davy. "Web based office applications will become more common, but it will be a long time before an engineer will design a 100million gate chip on the web."

"The loss of an internet connection for a period of time could bring down a complete design team."

Steve Lane, **Triteq**