

# Cisco uses 3D Systems 3D printing technology to help uphold Scandinavian design tradition

## Cisco Consumer Business Group (CBG)

- Formerly known as Linksys, a division of Cisco, the group develops home networking and networked entertainment solutions under the Linksys by Cisco brand, which targets the consumer market.

## Challenge

- Upholding traditional Scandinavian design standards in the competitive world of consumer electronics.

## Strategy

- Investing in the ZPrinter® 450 multicolor 3D printer from 3D Systems, maker of the world's fastest 3D printers and the only ones capable of printing in multiple colors simultaneously.

## Results

- With the help of fast, affordable prototyping throughout the design process, the Cisco Consumer Business Group produces elegant consumer electronics gear.
- ZPrinting produces prototypes in hours instead of weeks at one-fifth the cost of other prototypes.
- 3D printing lets Cisco apply its specific design standards in a way that keeps the development cycle humming.
- Cisco designers get all the prototypes they can handle, resulting in near-perfect products.

This is the story of how professional designers combined time-honored aesthetic principles with 3D printing technology to produce some of the world's most elegant consumer electronic equipment.

Devices like wireless routers, the media hub, and the wireless home audio system create what the Cisco Consumer Business Group calls the *connected life*, a life that's more personal, more social, and more visual. Constant network connectivity is a given, and the focus is on the content — the music, video, Web pages, and work materials coursing through the home, office, or classroom.

As these devices further infiltrate the home, networking gear becomes more central to our lives, moving from the "computer room" to the living space. Thus, like a stainless steel refrigerator, electronics must be aesthetically pleasing with sleeker, less boxy lines, while increasing connectivity, reliability, and intuitive operation. Thus, making functional objects both simple and beautiful is the challenge Cisco engineers face every day.



## CHALLENGE

### Upholding traditional design standards in the fast-growing consumer electronics world

Since design excellence is paramount for the Cisco Consumer Business Group, the company recently established a European Design Centre in Copenhagen, Denmark. Here the company continues the venerable tradition of Scandinavian design — functional, minimal, and affordable — without compromising design aesthetics.

Scandinavian design tradition requires the engineer to hold a prototype of his or her creation in their hands, sense the proportions, heed what the object has to tell them, and ensure that the form ultimately follows the

function. The artisan then modifies the design, creates another prototype, and examines the new design just like the first.

The problem is that traditional handcrafted prototypes are time-consuming and expensive to create. Most automated rapid prototyping technologies are just as costly and must be outsourced, adding time and inconvenience to the process. And though many designers rely on 2D screen images alone, they are simply insufficient to create the quality that the Cisco Consumer Business Group demands. The challenge, then, is upholding the highest aesthetic standards while meeting deadlines in the highly competitive consumer electronics business, where time to market is critical.



3DSYSTEMS™

## Case Study: Cisco Consumer Business Group



### STRATEGY

#### Investing in 3D printing technology from 3D Systems

3D Systems 3D printing technology helps Cisco quickly and inexpensively create the physical models it needs. A 3D printer creates physical objects from 3D computer-aided design data much as a 2D printer creates documents from word-processing text.

3D printing gave the Cisco Consumer Business Group a way to apply its exacting design standards in a way that keeps the development cycle humming, ensuring that products get to market on schedule. ZPrinting pumps out prototypes in hours instead of weeks and for one-fifth the cost.

“Proportions and ergonomics are paramount, yet too many designers rely on computer screens alone as their design medium,” says Eskild Hansen, Head of Cisco’s European Design Centre. “For our strategic design approach, we depend on physical prototypes and the ZPrinter 450 for each design review, both locally and globally in concert with our design partners in the United States. ZPrinting is an easy and effective way to conduct a productive global design review.”

### RESULTS

#### Lots of models for productive design reviews

Cisco uses the ZPrinter 450 to create 10 models per week, on average, for design review. Models are printed directly from 3D CAD files submitted by Cisco designers around the world.

Designers pass around the resulting models, mark them up with pencil, revise designs in the software, print out new models, and repeat the cycle as necessary. The hands-on step is an absolute must, according to Hansen, who selected 3D Systems technology because of confidence in the brand and his experience using it in other settings.

“We get prototypes quickly, we refine them quickly, we create new ones, and we derive our elite designs,” says Hansen.

3D Systems is the only company that makes a 3D printer capable of simultaneously printing in multiple colors. Color dramatically communicates the proposed look, feel and style of engineering product designs and develops architectural concepts, landscapes, entertainment figures, and medical information.

“It’s inspiring to see what my team can do with what the world has always received as a basic black box,” says Hansen. “Designs like these don’t just emerge from a computer screen. Because design is very important, 3D printing is an important element of our product strategy.”

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*– Eskild Hansen,  
Head of European Design Centre,  
Cisco Consumer Business Group*



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