Rugged Computing for Rough Environments

Some jobs really push the limits. Not just for the people doing the work, but also for the technology they use to get things done – especially when they're on the move.

First responders, such as police officers, firefighters, and emergency medical technicians, need exceptionally rugged, highly portable computers. So do search-and-rescue teams, military personnel, and field workers in the oil and gas industry.

Many other professionals work in harsh, challenging, or extreme environments: cable TV/Internet installers, insurance adjusters, field salespeople, and floor workers in warehouses, factories, and retail stores. Also on the list: scientists working in remote research stations, stock-car racing teams, and "Twister"-style tornado chasers.

"If customers need mobile computing and work without having a roof over their heads – or work with concrete under their feet – they're candidates for rugged notebooks," says Patrick Seidensticker, director of product technology for Dell's Rugged Mobility Group.

Using standard business or consumer notebooks in harsh conditions is, to put it bluntly, a formula for failure in the field – sidelining remote and mobile users and creating massive headaches for the often-distant IT team. What's needed instead is a line of rugged notebooks that can stand up to the most extreme conditions on earth.

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No Room for Lightweights

Think of them as "harsh" verticals: industries where employees need exceptionally durable computers to do their jobs in especially unforgiving environments. Workers in those fields range from boots-on-the-ground military units deployed in hot, dry deserts to oil-industry workers assigned to offshore rigs, and from extreme-weather watchers to pit crews at NASCAR races.

Standard notebooks just won't cut it in those conditions. "It's very, very difficult to do many of these jobs with a non-ruggedized device," Seidensticker says. That's because regular notebooks typically lack the features needed to perform in many of these harsh-vertical environments — for instance, screens that remain visible in bright desert sunlight, or backlit keyboards sealed against hurricane-driven rain.

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The cost of failures — or even of machines that require frequent support — can be especially high in field work. Such problems torpedo productivity by distracting workers who must struggle with computer problems rather than focusing on their jobs. Delays are constant, deadlines are missed, and projects are jeopardized.

Of course, standard laptops also generate plenty of headaches for IT teams — especially those providing service to mobile workers from afar. Any IT pro who's ever had to remotely support field workers knows all too well the pitfalls of using devices that simply aren't up to the job. They create extra work for IT staffers, increase repair and replacement costs, and, ultimately, send the long-term total cost of ownership (TCO) skyrocketing.

Extreme Environments Demand Extreme Solutions

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In fact, Dell Rugged notebooks qualify as military-grade machines (military standard 810G) due to their strong yet lightweight construction. Make no mistake though, unlike earlier rugged-type computers, these machines are made for business.

"Historically, rugged notebooks shipped with low-power processors because they generated less heat," Seidensticker explains. As a result, performance often suffered. Thanks to their QuadCool™ fan-based thermal cooling systems, Dell Rugged machines can withstand extreme temperatures. They're also equipped with the latest generation of high-power Intel processors, providing the superb performance that many workers in harsh verticals need to run sophisticated software and apps.

Three key factors help drive improved TCO of Dell Rugged machines:

1. RUGGED DESIGN:

Dell Rugged notebooks rely on a strong chassis that helps the machines survive shocks and drops. They're sealed against dust, sand, and water. The fully-sealed thermal cooling system helps keep them working properly in temperatures ranging from –20 °F to 140 °F. All that protection helps the machines last longer. In fact, according to a 2013 study by VDC Research, rugged devices have a far longer lifespan than their standard counterparts, typically only requiring replacement every four or five years. That also decreases TCO.

2. PRODUCTIVITY COMPONENTS:

Dell Rugged notebooks contain new productivity features unavailable on standard machines. For instance, users who wear thick gloves — such as those in the heating, ventilating, and air conditioning (HVAC) industry — can use the touchscreens without removing their gloves. "You can't do that with a standard notebook," Seidensticker says. Other features include outdoor-viewable screens that are readable even in direct sunlight, dedicated GPS for location accuracy, and I/O ports that accept legacy-type diagnostics that other notebooks can't accommodate. All feature a common docking solution, so that a single dock in a work truck or utility van can accommodate all three notebook models. This allows IT staff to assign different rugged devices to various roles without investing in multiple docking solutions.

3. DELL DNA:

"The Rugged notebooks are still Dell at the core," Seidensticker says. "They're still part of the Dell universe." That's good news, both for employees accustomed to using Dell computers and for the IT teams who have long supported them. Common architectural elements streamline IT management, even at a distance. "They're easier to manage remotely," Seidensticker says. "It's easier to track assets remotely. It's easier to push software updates to them so that they're faster to deploy."

In addition, the rugged machines are also easier to secure, thanks to the broad range of data-security options made possible by Intel Core vPro processor technology.

"For an IT person dealing with hundreds or thousands of notebooks in a user base, being able to manage machines they already know and trust also reduces the TCO," Seidensticker says — and that's something an organization's CIO, CFO, and other executives can appreciate as well.

Finally, the machines offer remote-access IT manageability tools powered by the latest Intel® Core™ vPro™ and Dell's unique vPro extension. That, too, increases uptimes and reduces support costs.

These factors — combined with Dell's unparalleled 24/7 expert support — are what separate the Dell Rugged Line from the rest of the pack. Dell's competitors simply fall short of offering the depth and breadth of service and support that Dell does. In fact, at Dell, service and support are always part of the solution.

Introducing the Solutions

Meet the latest generation of Dell Rugged machines:

- The fully rugged Dell Latitude 14 Rugged Extreme Notebook
- The fully rugged convertible Dell Latitude 12 Rugged Extreme Notebook
- The semi-rugged Dell Latitude 14 Rugged Notebook

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Rugged Extreme Solutions

Dell's two fully rugged laptops — the Dell Latitude 14 Rugged Extreme Notebook and the convertible Dell Latitude 12 Rugged Extreme Notebook — are both designed to help workers in a variety of fields do their jobs better, without worrying about whether their computers are up to the task. Both machines feature:

- A rigid magnesium-alloy frame constructed with shock-absorbing material that helps the machines survive tested vertical drops of up to six feet.
- State-of-the-art sealing to protect machines against dust, dirt, and liquids – even spraying water and hurricane-force winds.
- Dell's Quad-Cool system, which keeps the machines cool even in extreme heat.
- Dell's Direct-View screen, which offers excellent readability in conditions ranging from outdoors in direct sunlight to dimly lit interiors.
- A rugged RGB (red, green, blue) backlit keyboard.
- Touchscreens that can be used with or without gloves.
- Reliable connectivity.
- Long battery life (about 13 hours for the 14 Rugged Extreme).
- A universal docking solution – an industry first – that supports all three machines.

Dell Latitude 14 Rugged Extreme

The 14 Rugged Extreme is the fully rugged "workhorse" in the Dell Rugged stable, designed especially for users whose work requires a large screen as well as a durable, fully portable machine. As one ZDNet reviewer put it, the 14 Rugged Extreme is a hardy choice for "anyone who works outdoors and travels over rough terrain, and needs their laptop to handle the punishment."

The 14 Rugged Extreme's claim to fame is a 14" wide screen that's unique industry-wide in this category. It allows users to easily split their screens as needed for multitasking. It also features a fully redesigned keyboard that can be backlit in almost any color, depending on industry demands.

Dell Latitude 12 Rugged Extreme

The 12 Rugged Extreme, the industry's first rugged convertible, is the choice for someone whose work requires both mobility and the flexibility to switch form factors in an instant. Its crowning achievement is its innovative flip-hinge display, which easily switches back and forth from a notebook to a tablet computer. No complicated gyrations required here; users can convert from notebook to tablet with one hand, even while standing up.

"The Dell Latitude 12 Rugged Extreme is meant to take what the harsh outdoors can dish out, and it can confidently perform in environments other laptops can only dream of," a Laptop magazine reviewer concluded, also praising the notebook's military specifications, rotating touchscreen, and strong performance.

Semi-Rugged Solution

Dell Latitude 14 Rugged Notebook

Rounding out the new Dell Rugged line is the Dell Latitude 14 Rugged Notebook. This "semi-rugged" computer is the choice for someone seeking a durable laptop, but not necessarily one with all the features of the fully rugged models. This might be, for example, someone who works part of the time at home or in an office, and the rest of the time on the road or in the field.

The Latitude 14 Rugged Notebook reflects an innovative design approach. Rather than starting with a standard laptop and making it stronger, designers started with a rugged machine and redesigned it to maintain some of its strength while paring away some weight. The result: a machine that looks and feels somewhat more like a standard Dell business notebook — but is still a military-grade machine able to survive a three-foot vertical drop and use the same no-nonsense common docking solution that its fully rugged cousins do.

In fact, it stands up to the demands of mountaineer Melissa Arnot, who, among other achievements, has scaled Mount Everest five times. Because she spends so much of her time at high altitudes and in bitterly cold temperatures, Arnot says, "I clearly need something that will survive the rigors of my life." The Dell Rugged line fits the bill.

> **"I clearly need something that will survive the rigors of my life."**
>
> – Professional mountaineer and Dell Rugged customer Melissa Arnot

The Bottom Line

Together, the three Dell Rugged machines offer organizations and workers in harsh verticals entirely new combinations of exceptional durability, high-powered performance, and unique new features based on real-world user feedback. Above all, they offer choice. "Some users want the larger 14-inch fully rugged machines because they need the large screen," Seidensticker says. "Some want the 12-inch fully rugged machines because they want mobility and flexibility. And some want the semi-rugged machine because it's designed for both the desk and the field. We're providing a very high level of versatility."

For more information, visit
www.dell.com/rugged