

*BEST PRACTICES for DATA CENTER*  
**EQUIPMENT**  
HANDLING





# Strategic CIOs Reduce Costs in the Data Center by Relying on the Right Tools

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## CIOs are *still* challenged to do more with less.

In the Society for Information Management's most recent survey, a majority of IT leaders reported a very modest uptick in budgets. "The percentage of revenue allocated to IT rose to 5.14 percent in 2014, up from 4.95 percent in 2013."<sup>1</sup> Data center infrastructure remains a top priority, ranked behind analytics and business intelligence but ahead of ERP, application software development, and cloud computing.

There is a lot of room there to grow, according to an IDC/IBM report on data center best practices: "Data centers are under constant pressure to scale and evolve to meet the changing needs of the underlying business. To adapt to these challenges, each data center takes a slightly different approach. Today, about one in five data centers operate at the Strategic, or highest efficiency, level."<sup>2</sup>

## 80 PERCENT OF DATA CENTERS, IN OTHER WORDS, HAVE A LOT OF ROOM FOR EFFICIENCY GAINS.

Probably, none of that is a surprise. You spend a lot of money every year to improve efficiency in the data center. You spend money on expensive software and hardware that promises to deliver on the demands of the business. You focus on optimizing performance. You aim to adopt the best practices of strategic CIOs.

But no matter what you do in the way of densification or virtualization or automation, your plans to improve efficiency could be derailed by a single incident of equipment damage or injury. Such incidents are significantly more common – and more expensive – than you might think.

<sup>1</sup> NetworkWorld, "Security tops CIO worries; IT budgets, turnover on the rise," 11 Sep 2014.

<sup>2</sup> IBM/IDC, "Data Center Operational Efficiency Best Practices."

To mitigate the risk of injury and equipment damage, how IT equipment is handled in the data center really matters.

Using the right tools in your data centers is an important – perhaps the *most* important – factor in reducing costs there. DCIM to improve energy efficiency. Advanced power distribution and backup systems to minimize downtime. Biometric scanners to reduce security risk. And a purpose-built Data Center Infrastructure Handling (DCIH) device to mitigate the risk of injury and equipment damage.

## The High Cost of the Wrong Tool

Employee injury and equipment damage are two of the chief risks associated with using the wrong tool to move IT equipment in the data center. These are the kinds of risks that can add up to hundreds of thousands of dollars a year. The kind that can completely derail any plans you made to increase efficiency.

### Employee Injury

Servers and other rack-mounted equipment can weigh up to 800 pounds. According to the National Institute for Occupational Safety and Health, the maximum weight to be lifted with two hands *under ideal conditions* is 51 pounds.<sup>3</sup> And conditions in the data center are typically far from ideal: Most server racks extend from the floor to nine feet, well outside what the California Department of Industrial Relations calls the “power zone” (that is, between the shoulders and the knees).

THE MAXIMUM WEIGHT TO BE LIFTED WITH  
TWO HANDS *UNDER IDEAL CONDITIONS* IS 51 POUNDS.<sup>3</sup>

Indeed, popular server manufacturers such as Oracle and Hewlett-Packard specify a minimum of 2 people to install 2U servers and up to 4 people to handle heavy equipment. Yet according to the California Department of Industrial Relations, “team lifting can increase the risk of a slip, trip, or fall accident.”<sup>4</sup>

In a survey of data center operators at the Interop conference in 2012, 52 percent of respondents said that they knew of injuries sustained while moving rack-mounted IT equipment in the data center. 14 percent knew of four or more injury incidents.

<sup>3</sup> California Department of Industrial Relations, *Ergonomic Guidelines for Manual Material Handling*, 2007.

<sup>4</sup> *ibid.*

## INJURIES IN THE DATA CENTER

**52%** of surveyed data center managers know of injuries sustained while moving IT equipment in the data center



Source: ServerLIFT data center operator survey, Interop 2012

The total employer-borne cost of workplace injuries includes direct costs such as medical bills and worker's compensation payments. It also includes indirect costs such as employees' lost productivity due to time away from work and chronic musculoskeletal problems that limit ability.

Those costs are significant: \$175.6 billion in 2014, according to the National Safety Council.<sup>5</sup> The average cost to an employer of a single back injury is more than \$50,000.<sup>6</sup> And those don't account for the cost to the injured employee – costs that can include a lifetime of chronic pain and limited ability.

### Equipment Damage

64 percent of respondents to the Interop survey said they knew of at least one incident when rack-mounted IT equipment was dropped and damaged in the data center. 16 percent knew of ten or more incidents.

## EQUIPMENT DAMAGE IN THE DATA CENTER

**64%** of surveyed data center managers know of IT equipment damaged after being dropped in the data center



Source: ServerLIFT data center operator survey, Interop 2012

<sup>5</sup> National Safety Council, *Injury Facts*, 2014.

<sup>6</sup> California Department of Industrial Relations, *Preventing and Reducing Costly Injuries and Illnesses*, 2008.

Those are expensive incidents. Consider, for example, the story of the federal contractor who sued the server manufacturer for \$1.4 million after a server fell off a forklift and was irreparably damaged while it was being moved into the customer’s facility. The contractor blamed the manufacturer for not packaging the server well enough. But servers are neither designed nor packaged to fall off forklifts. Or out of a data center operator’s hands.

Even when a tool is used to move IT equipment – a warehouse lift, for example – if it’s not the *right* tool, equipment damage is still a risk. Imagine, for example, what would happen to overhead cabling if an errant warehouse lift punched through the ceiling panel. Or worse, what would happen if a server cabinet was bumped by a warehouse lift not designed to make the tight turns in a data center.

Data center infrastructure is not designed to be punched and bumped. So in an environment in which the cost of the facility – from the building itself to the infrastructure inside it – can run into the hundreds of millions of dollars, mitigating IT equipment and infrastructure damage can avoid the kinds of costs that keep you awake at night.

**Learn more about the causes – and the costs – of injuries and equipment damage in the data center. Download *Best Practices in Data Center Infrastructure Handling*.**

## Are Your Data Center Operators Relying on the Right Resources?

Best practice data center operators take the same approach to moving IT equipment as with every other data center activity: They use the right tool. Specifically, a Data Center Infrastructure Handling (DCIH) device.

Right Tool Purpose-built DCIH Device	Wrong Tool General-purpose Warehouse Lift
Purpose-built for moving IT equipment in the data center	Not built to navigate the narrow aisles of a data center
Certified for use in the data center	May not be certified to comply with local regulations
Ambidextrous operating controls are easily accessible from any position	One fixed operator position

Right Tool Purpose-built DCIH Device	Wrong Tool General-purpose Warehouse Lift
The platform is rigid and stable under load	Platform tends to sag over time
Designed for side loading on either side of the aisle	Designed for front loading
Equipment can be secured to the device platform	Typically not set up to secure equipment to the platform
Capable of incremental up/down movements for precision	Not capable of precise movements
Accommodates the full vertical range of a data center cabinet	Not capable of lying flush with the floor
Automatic safety measures prevent damage to overhead infrastructure	Typically no overhead automatic safety stops
Braking system effectively prevents movement during lifting and install	May prevent directional motion, but can still rotate about the single braking point
Casters or wheels can traverse the data center floor without damaging it	Lift wheels not designed for the raised floor panels of a data center

## 14 Questions to Ask Your Data Center Managers

To differentiate between the right tool (a true purpose-built DCIH device) and the wrong tool (a general-purpose materials handling device or warehouse lift), best practice data center operators consider 14 factors. Have your data center managers considered them? Here are 14 questions to ask to find out:

1. **Design intent.** Is the device specifically designed to be used in a data center?
2. **Load capacity.** Is the device's rated capacity able to handle the weight of the IT equipment you need to lift or may need to lift in the future?
3. **Compliance.** Does the device comply with local regulations and is it certified as such?

4. **Operating controls.** Are the device controls easily accessible from a variety of operator positions?
5. **Platform stability.** How rigid and stable is the device under load?
6. **Equipment positioning.** In which orientation does the device position equipment?
7. **Equipment security.** Can the equipment be secured to the device platform?
8. **Micro adjustment scale.** Is the device capable of making incremental up/down movements?
9. **Lifting speed.** How quickly can the device lower or raise a maximum load?
10. **Platform range.** What is the vertical range (lowest to highest position) of the device's equipment platform?
11. **Overhead safety.** Does the device have safety measures to prevent damage to the data center facility?
12. **Braking system.** Does the device have a braking system that effectively prevents movement during lifting and install?
13. **Wheels.** Are the casters or wheels of the device adequate for traversing the data center floor without damaging it?
14. **Containment.** Does the device have components that contain hazardous fluids or compounds that are restricted from use in your data center?

**Learn more about differentiating between a purpose-built DCIH device and a general-purpose warehouse lift. Download the article *Buying a Data Center Lifting Device*.**

## The Right Tools to Reduce Costs

Using the right tool mitigates the risk of injury and damage in the data center. The associated savings are significant – **\$3,578,680 in potential cost savings over ten years.** From a \$13,800 data center infrastructure handling device. That's an ROI of 25932 percent.

As a CIO, you're challenged to do more with less. To meet the changing needs of the underlying business while still overseeing the tactical aspects of running a large IT organization. To become a *strategic* CIO. You'll need the right tools. Because while the tool your data center operators use to move IT equipment might feel like a small tactical concern, the costs of not having the right tool could outstrip even your hardest-won efficiencies.

### USE THE RIGHT TOOL – A PURPOSE-BUILT DATA CENTER EQUIPMENT HANDLING (DCEH) DEVICE.

#### About ServerLIFT Corporation

ServerLIFT is revolutionizing the IT hardware industry worldwide with purpose-built, data center certified Data Center Infrastructure Handling (DCIH) solutions. ServerLIFT DCIH devices are built for precision, stability, and maneuverability in the data center. The most sophisticated data center operators in the world, including more than half of the Global 100, rely on ServerLIFT.

**To find out more or to speak to one of our Solutions Specialists,  
visit [Serverlift.com](http://Serverlift.com) or call (602) 254-1557**