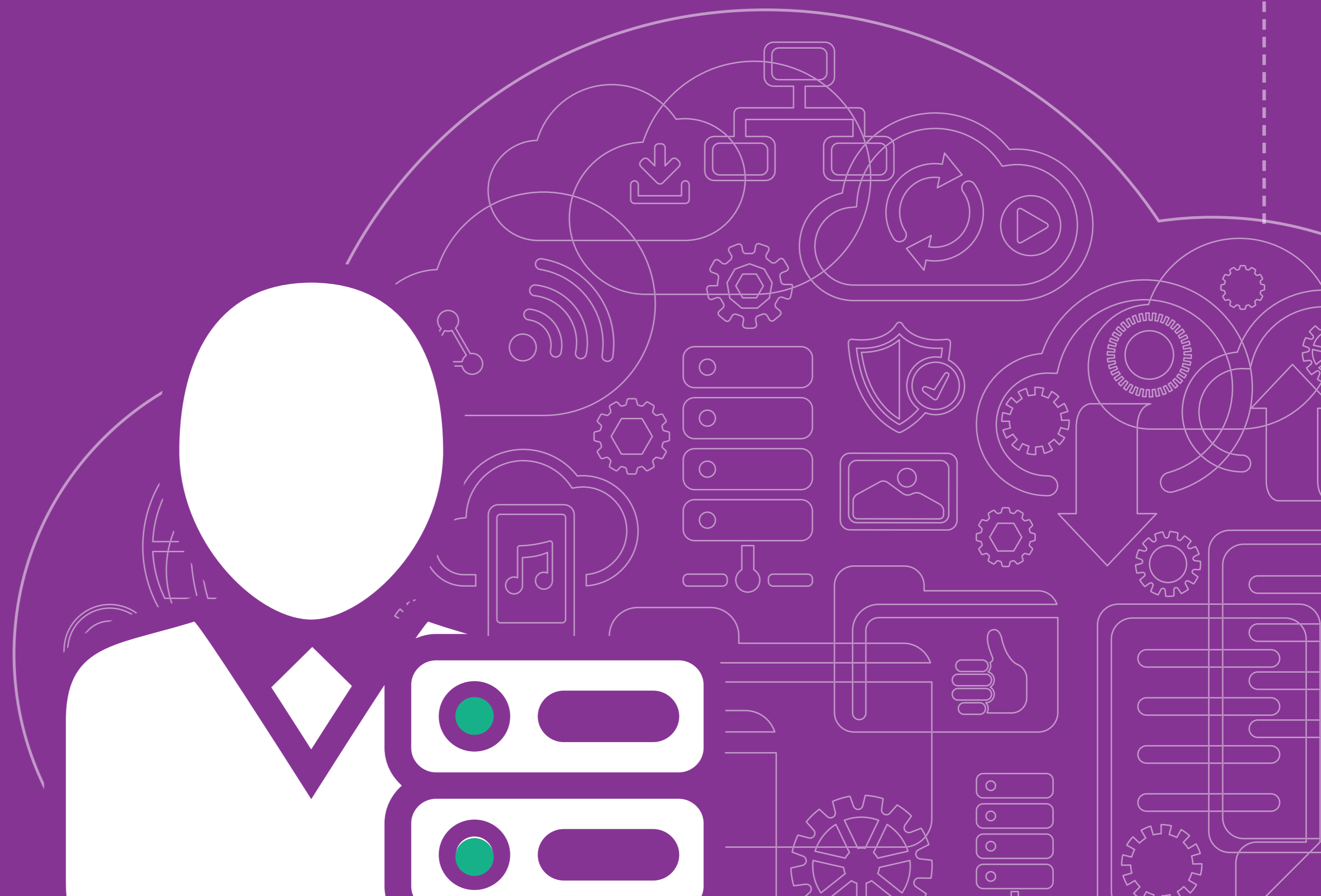


CIOs: Are Your Data Centers Prepared?





Agenda

-  What's Driving Data Center Expansion and Complexity?
-  Top 10 Emerging Technology Trends
-  Data Centers Must Change to Keep Up with Technology
-  Why Status Quo Won't Be Good Enough
-  Use DCIM to Manage Data Center Expansion and Complexity
-  DCIM Helps Reduce Common Data Center Costs
-  4 Real World Examples of DCIM in Action
-  Summary
-  Appendix – Technology Definitions



What's Driving Data Center Expansion and Complexity?

Gartner predicts that “within the next **10 years**, every industry will be transformed by digital business.”

Internet Enabled Devices		
1984	Today	2020
1,000	17B	50B

The transformation by digital business will have profound effects on data centers – lots of data, more analysis and processing power, and automation to keep up with rapid changes and increased service demands.

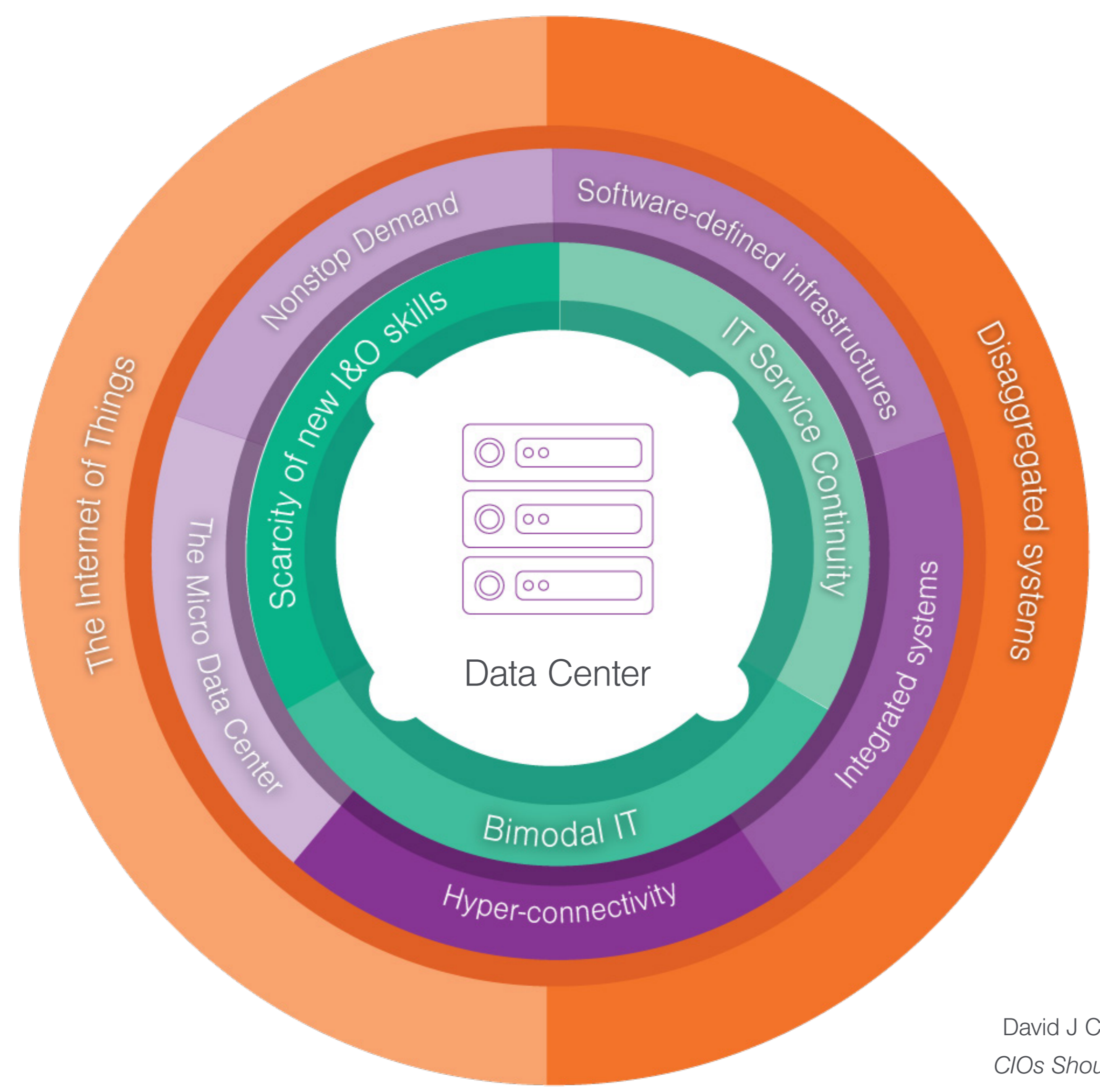
- Demand is driven by 14.4 billion Web pages, 1.3 million iPhone applications and 1.1 million Android apps, all being accessed by users who have on average four different types of devices.
- The IoT is creating a upsurge of connected devices. By the end of 2015, over 1.2 billion objects will have come online.

Equipping your data center with a tool that is easy to use, provides integration, and helps to reduce cost in light of the increasing demand on your data center, can provide you with a leg up on your competition.

Here in this eBook you can learn more about these trends and how Data Center Infrastructure Management (DCIM) software can help your staff improve productivity, improve awareness of potential issues, and enhance forecasting and decision making.



Top 10 Emerging Technology Trends*



CIO Involvement

- Be Proactive
- Be Engaged
- Be Aware

David J Cappuccio, Gartner, Inc. (2014. December).
 CIOs Should Understand These Ten Emerging Trends



Data Centers Must Change to Keep Up with Technology

Support an open-hardware environment

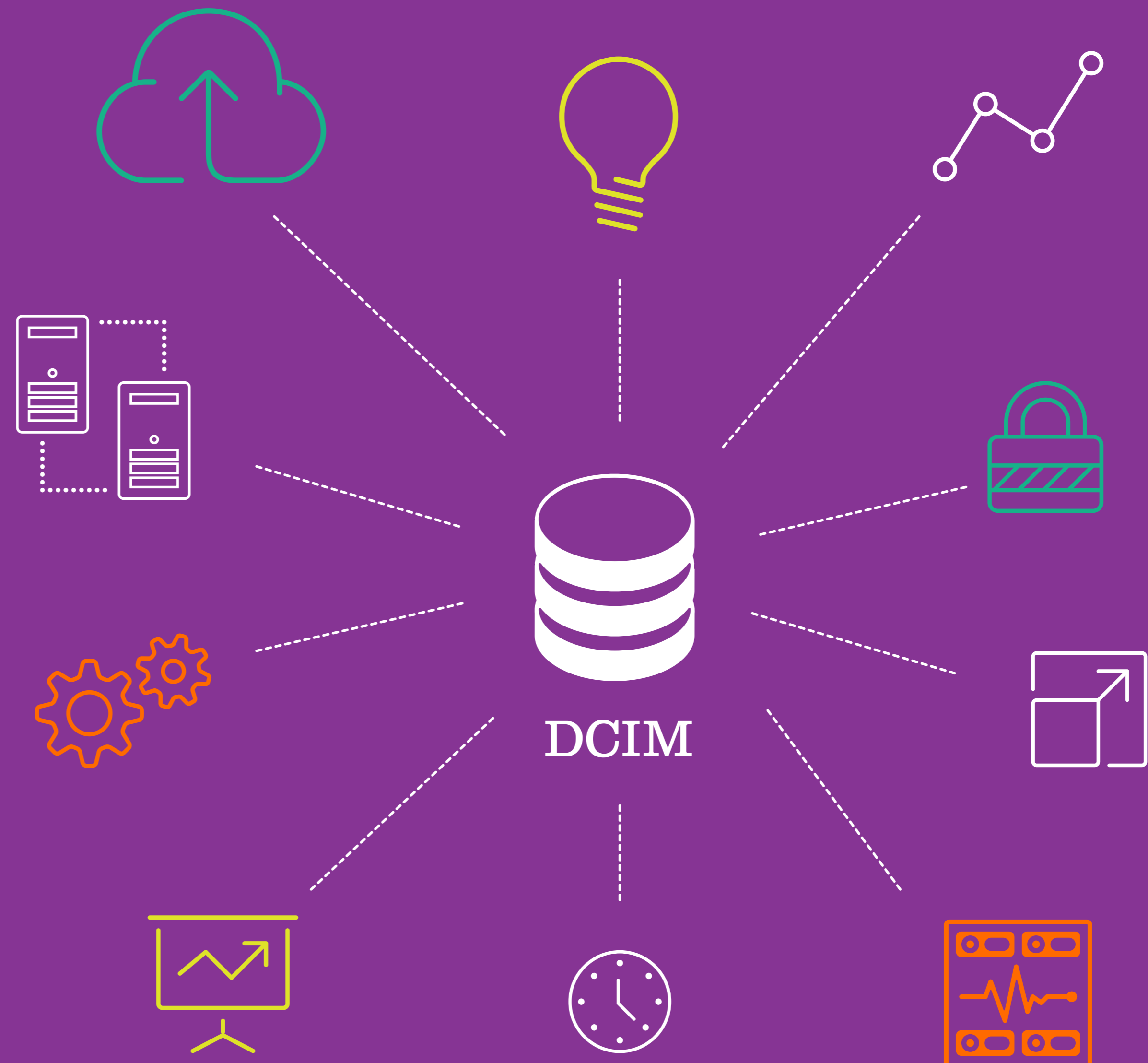
- Integrate to anything
- Legacy systems
- Cloud environments
- Business model innovations

Build applications faster

- Flexible processes
- Automation
- Scalability

Provide anytime access to management of assets and services

- Availability
- Capacity





Why Status Quo Won't be Good Enough

Status Quo is LESS:	
<p>Reliable</p>	<p>Efficient</p>
<p>Productive</p>	<p>Agile</p>

Lack of visibility. Limited knowledge about data center performance, utilization, and capacity prohibits alerting and corrective action before issues become problems and derails troubleshooting capabilities.

Increased complexity. Disparate technologies, devices, sensors, information, proprietary interfaces and the lack of integration tools prevent flexibility, ease of use and scalability in the face of rapid change.

Manual processes. Delayed work orders and complex processes delay time-to-market for new services offerings.

Multiple information sources. Data stored in static Microsoft® Excel, Microsoft® Visio drawings, or homegrown database files, without easy integration, means no single source of truth, and the need for frequent, on-site visits to identify space, power, and networking capacity. The data is inaccurate, incomplete, or quickly becomes out of date resulting in stranded capacity, overprovisioning and the need to unnecessarily make large capital investments for new data centers.

Lack of remote management capabilities. Manual power control and inaccurate information mean frequent on-site visits, and limit anytime, anywhere access to data center controls and information.



Use DCIM to Manage Data Center Expansion and Complexity

Ease of Use. Visualization and drill-down tools provide an instant picture of what you have, where it is located, and provide a quick assessment on issues before they become problems.

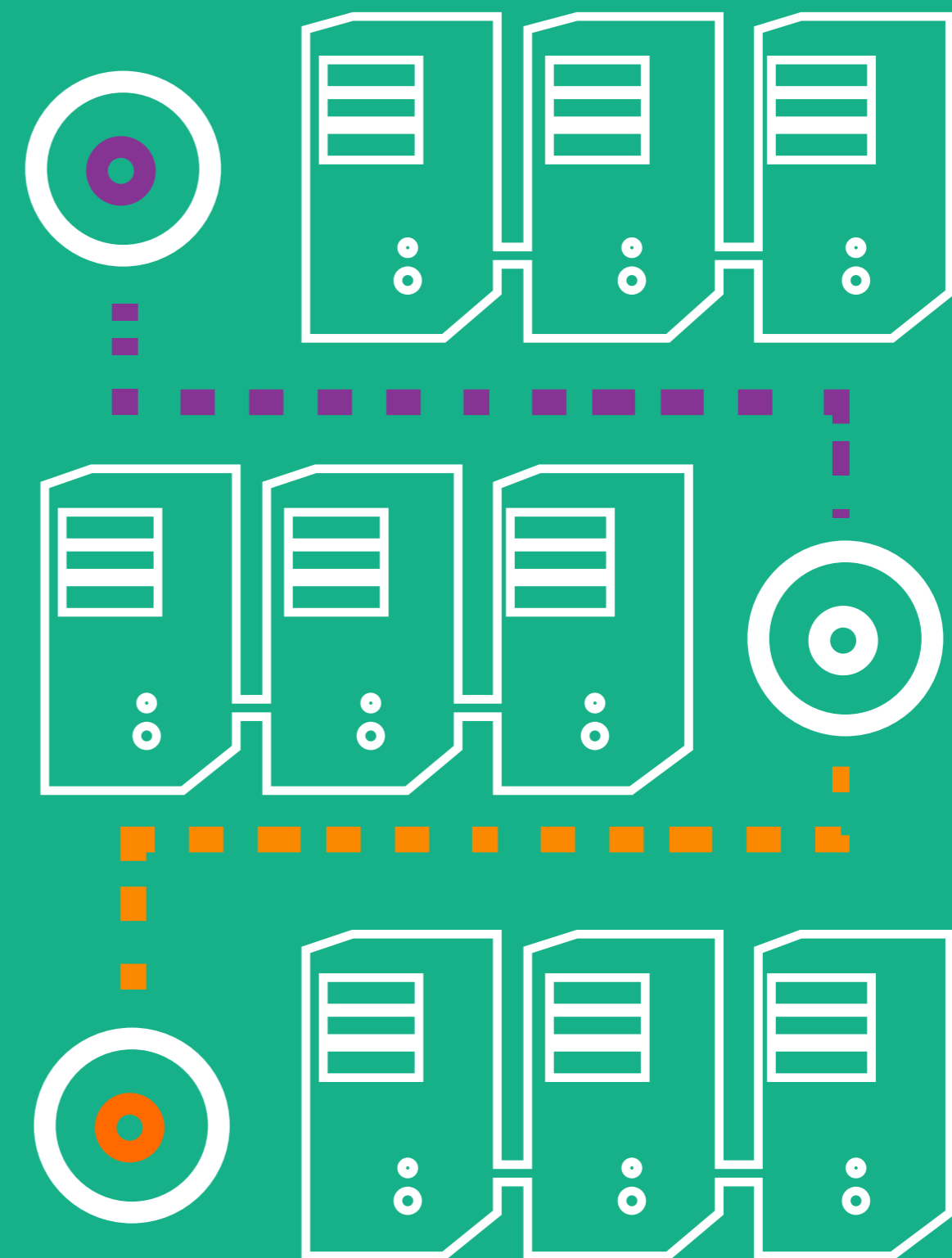
Integration. APIs enable the integration between many disparate technologies, devices, sensors, and information that flow from third-party CMDBs, ticketing systems, and BMSs.

Workflow Management. Monitor and report on requests, work order details, start/complete date, and actions taken to improve staff productivity and efficiency.

One “Trusted Source of Truth”. Collaborate and make real-time decisions about all your data center infrastructure assets including servers, networking, and storage, with a single searchable/filterable database.

Improve Capacity Planning & Utilization. Quickly and easily understand the data center capacity across power, networks, and physical space. Quickly model and allocate space for new equipment and dramatically decrease time to provision new services.

Remote Management. Web-based tools enable visualization, access to data center information and services, and provide remote control/management from wherever you are.





DCIM Helps Reduce Common Data Center Costs

\$12,300
Physical infrastructure costs
Cabinet - \$1,500
2 Intelligent Rack PDUs -\$1,800
2 Top of rack switches -\$5,000
Structured cabling (labor and materials) - \$4,000

\$2,200
Cost to deploy a cabinet
Planning & deployment - \$75/hr. x 16 hrs. - \$1,200
Non-recurring cost to provider - \$1,000

\$1,750 per month
Cost of running a cabinet (OPEX)
Space - \$1,700
Cooling - \$144
Power - \$216

\$714,000
Annual cost for inventory collection, inventory reconciliation, finding misplaced assets, manual repository updates, and replacement of misplaced assets
Approximately 706 man days of time lost.
<small>(Source: Braswell, Keith. (2014, April 28). Automated Asset Tracking in the Data Center: How IBM Reduced the Time/Cost of Tracking Data Center Assets)</small>

\$7,908 per min Cost of downtime
<small>(Source: The Ponemon Institute. (2013, December). 2013 Cost of Data Center Outages)</small>



Example: Reduce Downtime Through Enhanced Visibility

- Use trends to quickly identify power spikes, prevent potential problems and maximize uptime.
- Circuit failover simulation analysis ensures resources to handle a potential failover, eliminating outage concerns.
- Easily identify IT equipment dependencies for power and network enabling fast root cause analysis and mitigating potential failure points.
- Full power chain visibility enables fast root cause analysis to mitigate power issues and limit downtime.



DCIM
provides
fast ROI

	Costs	Before DCIM	After DCIM
Downtime	\$7,908/minute Average downtime = 10 minutes/month Improvement 50%	\$79,080	\$39,450
DCIM	\$15/cabinet/mo. (Assume 500 cabinets)		\$7,500
Total	Per Month	\$79,080	\$46,950
	Per Year	\$948,960	\$563,400
Savings	Per Year		\$385,560



Example: Increase Productivity With Process Improvements

- Central accurate database of all data center asset information and their relationships.
- Simple tool to enable fast service provisioning by automating the process of optimal asset planning and reservations in the data center.
- Verification and approval of workflow process reduces delays and bottlenecks.
- Enterprise-wide system enables collaboration and coordination of resources to increase productivity.



**DCIM
provides
fast ROI**

Source: Raritan, Inc. (2014).
UF Health Shands Manages Data Center Resources and IT Health
with dcTrack® DCIM Solution

	Costs	Before DCIM	After DCIM
Missing or Inaccurate Information and assets	Process of inventory collection, reconciliation, finding misplaced assets, manual repository updates and replacement of misplaced assets	\$714,000/yr.	\$357,000/yr.
Time to provision a single move, add or change	\$75/hr. x 16 hrs. 50 changes/mo. 50% improvement with DCIM*	\$720,000/yr.	\$360,000/yr.
DCIM	\$15/cabinet/mo. (Assume 500 cabinets)		\$90,000/yr.
Total		\$1,434,000/yr.	\$807,000/yr.
Annual Savings		\$387,000/yr.	\$627,000/yr.



Example: Improved Capacity Planning Eliminates Capital Spend

- Instantly and accurately see cabinet level capacity resource availability and determine if more services can be added to a given cabinet.
- Know available and “reserved” capacity and eliminate over-provisioning and under-provisioning situations.
- Visualization and capacity tools allow you to identify underutilized assets.



DCIM
provides
fast ROI

	Costs	Before DCIM	After DCIM
Ongoing OPEX of 500 cabinets	Reduce cooling costs by increasing temperature set points by 2 degrees	\$864,000/yr.	\$820,800/yr.
Purchase 35 more to expand because no DCIM to find stranded capacity for 3 more servers per cabinet	\$14,500/cabinet (includes physical infrastructure and deployment costs)	\$507,500 (one-time)	\$0
Additional OPEX Costs for 35 cabinets	\$1,750 per cabinet/mo.	\$735,000/yr.	\$0
DCIM costs	\$15/cabinet/mo.		\$90,000/yr.
Total	Year 1	\$2,106,500	\$910,800
Savings	Year 1		\$1,195,700



Example: Support Business Growth Through Increased Agility

Before DCIM

- Difficulty understanding cabinet capacity, without being on-site or using outdated Microsoft® Visio or Microsoft® Excel files which can sometimes be inaccurate.
- Unable to know when power capacity will run out and inability to forecast expansion based on historical equipment usage and power consumption rate.
- Keeping track of assets manually can be quite cumbersome and quite costly. One study notes that the process of inventory collection, inventory reconciliation, finding misplaced assets, manual repository updates, and replacement of misplaced assets have a **yearly cost of \$714k and approximately 706 man days . ***

*(Source: The Ponemon Institute. (2013, December). 2013 Cost of Data Center Outages)

After DCIM:

- Make decisions faster and smarter with up-to-date, real time information and reporting from a single, centralized data-base and reporting available to all decision makers.
- Dramatically improve your planning and know when you need to expand or purchase more.
- Gain advanced warning and enable alternate or remedial planning scenarios.
- Replace manual efforts with automated DCIM.



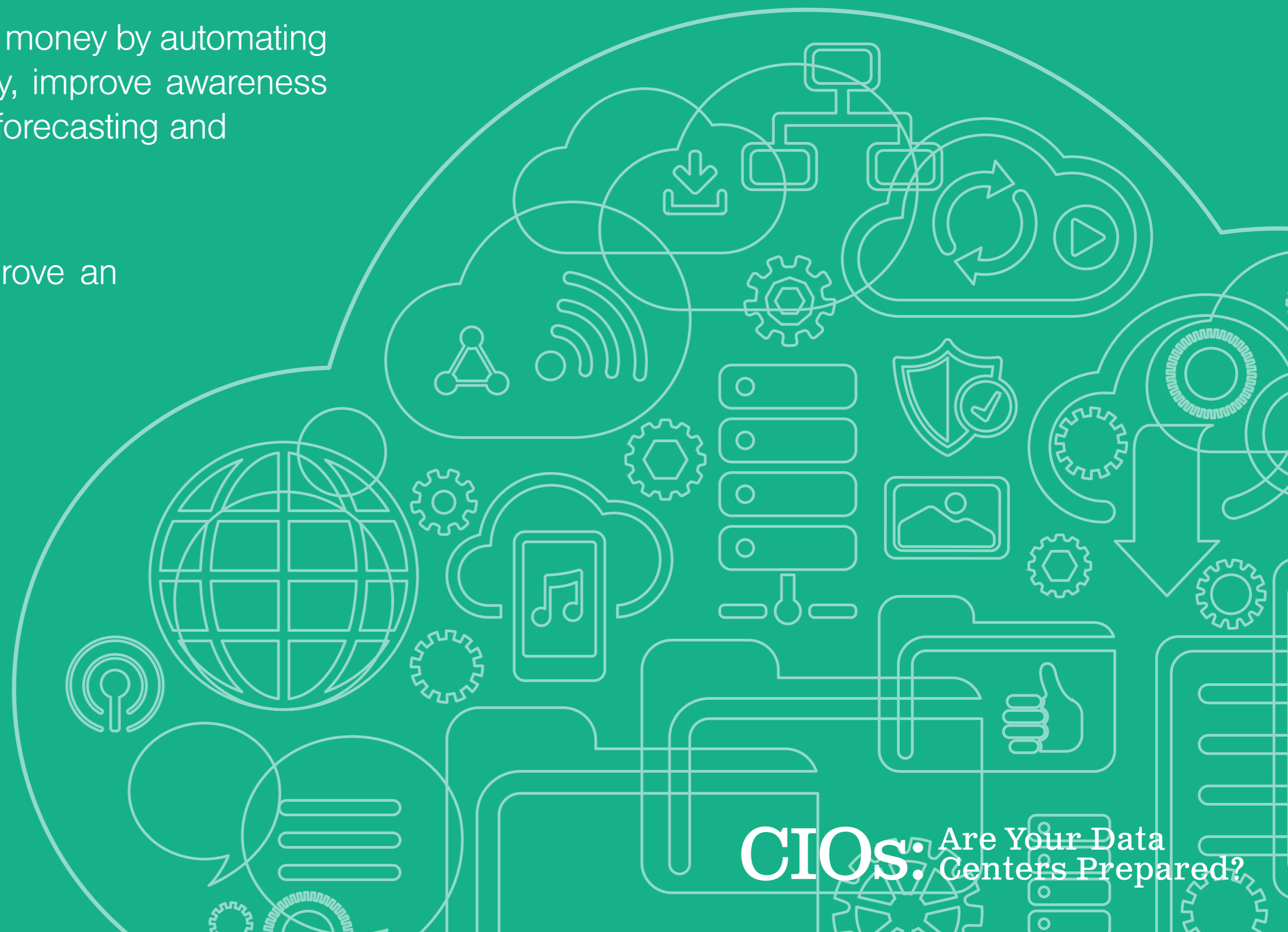
Summary

Digital business technology is rapidly advancing and increasing traffic within data centers.

Manual processes will no longer suffice to keep up with increased demand.

DCIM can save valuable time and money by automating processes to improve productivity, improve awareness of potential issues, and enhance forecasting and decision making.

The benefits and cost savings prove an easy case for DCIM.





Next Steps



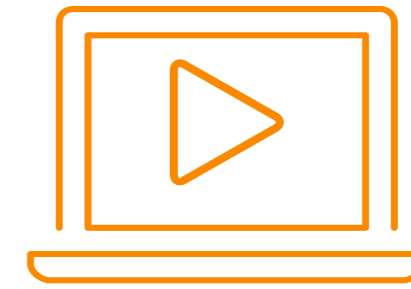
ROI Calculator

[TRY THE ROI CALCULATOR >](#)



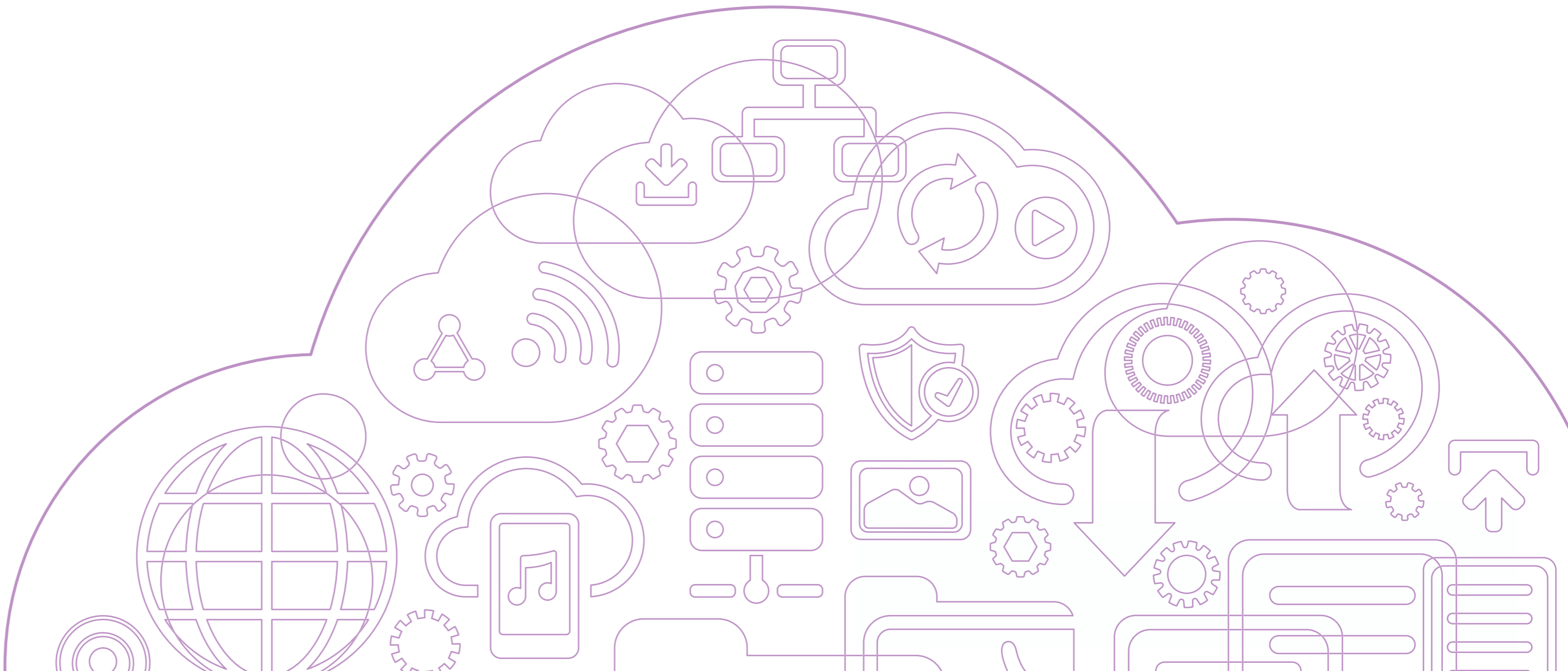
Read the UF Health Shands Business Case

[READ THE BUSINESS CASE >](#)



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Technology Trend Definitions

- 1 **Software-defined infrastructures** – the ability to define application requirements and automate the manual tasks associated with creating the resultant infrastructure (networking, storage, data center, etc.) configuration from a single place.
- 2 **IT service continuity** – the incorporation of methods, such as Disaster Recovery management, to reduce and minimize the impact of disruption and incidents on IT service delivery to customers.
- 3 **Integrated systems** – the combination of multiple functions and linkage of multiple (vendor) systems in such a way as to work as a single, unified entity.
- 4 **Disaggregated systems** – the use of an open-hardware environment with shared connections and power feeds. Each piece of hardware can be purchased independently.
- 5 **Bimodal IT** – the use of two modes of enterprise IT to address different information and technology goals – traditional and exploratory - and enable the business to scale, react fast, and be flexible.
- 6 **The Internet of Things-** the concept of physical objects or “things” embedded within the network – example embedded sensors, software, and connectivity - that are self-aware and that enable the exchange of data with other devices and applications.
- 7 **Hyper-connectivity** – the connection and interconnection of “everything” to empower users and providing knowledge through social media, collaboration, and mobile capabilities.
- 8 **The Micro Data Center** – self-contained environments that include compute, storage, networking, power and cooling.
- 9 **Nonstop demand** – the incredible growth and demand for anytime access to services and therefore an unpredictable growth in demand for bandwidth, IT capacity and IT services.
- 10 **Scarcity of new I&O skills** – the ability, or lack of knowledge on how new environments, that support IT performance and support, work together.