Information Technology Infrastructure Assessment & Consultation Solutions
Various Corporate & Public Sector Clients

Derive’s Offering

**Derive Technologies** has made network infrastructure and systems solutions the central focus of its professional services portfolio since the company’s inception. This includes the design, deployment, and managed support of complex datacenters, networks, and other core technologies for numerous, renowned, healthcare, financial services, government and public sector, and professional services clients.

Among Derive’s most important offerings are comprehensive technology analysis, performed by experienced network and data center architects. These advanced discovery and recommendation engagements serve as blueprints for infrastructure transformation and modernization, improved network and systems performance, enhanced security, as well as cost-containment and reduced environmental footprints.

Derive’s **Technology Infrastructure Assessments** cover all aspects of an organization’s information systems through interviews with business and IT stakeholders, execution of automated survey tools, and manual discovery methods. Derive also audits the accuracy of any client-provided baseline network documentation. Our service:

- Reduces deployment costs and complexity by assessing current capabilities and readiness to upgrade existing technologies, or adopt new technologies, applications, solutions, and/or architectures.
- Improves the total cost of ownership of investments in new technologies, architectures and applications—reducing overall IT expenditures.
- Helps to better integrate new technologies throughout your organization—through the use of industry-standard best practices.
- Strengthens support infrastructures, processes, and tools.

At the close of these engagements, formal reports are delivered, containing feedback and recommendations on how businesses and...
public sector organizations can best improve logical and physical datacenter and network designs. If the assessment is undertaken to evaluate whether new technology purchases, or professional service investments, should be made, an appropriately sanitized version of this client-specific report is also delivered.

Sample Client Engagements
Derive's professional services team has performed numerous comprehensive IT assessments throughout the company's history. Two recent engagements (detailed below) demonstrate the depth of Derive's unique offering:

CASE ONE – New York Metro Area Public Property Development & Administration Organization: In early 2016, a network assessment was performed by Derive for a public benefit corporation that administers a major municipal property in the New York City area—the organization manages the property's development and all of its facilities, its public safety, its activities, and its transportation.

Derive's professional services team was engaged to discover and document the organization's LAN/WAN infrastructure and other components of the client's core technology—providing a 360-degree inventory of all systems and configurations. As part of the initiative, Derive would deliver recommendations on how the organization could best improve the performance, reliability, manageability, and security of various IT platforms and services, such as Microsoft Active Directory, VMware vSphere, and underlying LAN, WAN, wireless, and shared storage infrastructure.

Derive's surveys are performed “agnostically,” so that Derive, and/or other system integrators, can be engaged, following the completion of these engagements, to potentially provide further IT design, procurement, deployment, and support services. This municipal organization used Derive's 2016 assessment and recommendations to make determinations on required technology projects and to select vendors (including, but not limited to, Derive) to support upgrades and modernizations.

Derive leveraged its experience as a Microsoft Gold Certified Data Center Partner, a VMware Solution Partner, a Cisco Premier Certified Partner, and an alliance partner to a series of other technology providers relevant to the engagement, to conduct a comprehensive review of the organization's infrastructure. Derive's assessment covered several broad technology areas, organized into six overall sections:

• **Network Infrastructure**: Details were provided on the configuration of the organization’s private IP network including wired and wireless LAN topology, Internet connectivity, and perimeter security architecture:
  o Derive determined that the organization's LAN/WAN infrastructure could be improved with a more unified, strategic, design vision.
  o A number of solutions were previously implemented to accomplish individual, tactical goals. Derive recommended that the organization would obtain greater benefits from implementing a controller-based wireless access point solution, and by redesigning its IP network infrastructure.

• **Systems Services**: Details were provided on the identity management and directory services infrastructure and associated services (Active Directory, DNS, DHCP, etc.):
  o Derive's analysis of the organization's Active Directory and system services infrastructure, determined that it was generally stable and reliable.
  o Derive recommended implementing certain configuration optimizations and best practices to further
improve systems performance, reliability, and manageability—these included specific changes to the organization’s Microsoft Active Directory and related system services

- **Virtualization and Storage:** Derive documented the current state, and made recommendations for improved utilization of the VMware solution that ran all of the organization’s existing critical applications and services:
  - Derive discovered that the organization had upgraded its VMware vSphere and associated shared storage infrastructure.
  - Derive found RIOC’s server virtualization platform configuration to be generally stable and reliable—the compute, networking, and storage resources were adequate, given the then-current Hypervisor workload.
  - Recommendations were made for the resolution of configuration anomalies and inconsistencies, and to improve the performance, reliability, and manageability of the organization’s virtualization infrastructure. These included upgrading guest VMs to the latest supported VMware “virtual hardware” and VMware tools versions, and more consistent vSphere Networking configuration across ESXi hosts.

- **Enterprise Backup Solution:** Derive provided information on the client’s data protection strategy and backup software configuration:
  - Derive learned that the client was preparing to update/replace its data protection and backup services.
  - Upon this discovery, Derive recommended that whichever new solution would be put in place should include key features such as hypervisor-awareness, application awareness (esp. surrounding SQL and MYSQL databases and transaction logs), multiple backup target support (tape, disk and cloud), and multi-OS support.

- **Physical Infrastructure:** Derive detailed the client’s rack layout and power protection for their headquarters and for the IDF closets in the organization’s satellite offices:
  - Derive recommended the following to more effectively support the client’s physical technologies: A comprehensive design that consolidated and standardized services, proper decommissioning of unused equipment, creation and implementation of centralized cable management standards, and the standardization of power protection for all equipment.
  - These recommendations would not only reduce cost and complexity, improve performance, and make systems more stable, they would further reduce the organization’s environmental footprint.

- **Video Surveillance Solution:** As a developer and manager of a major property’s facilities, the client has overall responsibility for all security on the property. Derive’s assessment provided details on the configuration of the organization’s surveillance system—the Bosch Video Management System, including a complete inventory of software components, servers, and IP surveillance cameras.

**CASE TWO – Overseas Government Finance Organization:** In 2015, Derive was engaged to conduct an analysis of the Cisco Systems LAN/WAN infrastructure for the New York branch of a sovereign wealth fund (SWF) for an overseas government’s central bank. The organization’s network architecture was originally designed and deployed by Derive Technologies in the second quarter of 2007.
Leveraging extensive experience in designing and deploying Cisco solutions, Derive’s professional services team determined, in the initial stages of discovery, that the organization’s underlying Cisco networking design and hardware platform had remained largely unchanged from 2007 to 2015. Only incremental updates to equipment had been performed throughout this period—these in support of increased capacity requirements and new applications. At the time, the organization’s Cisco LAN infrastructure was composed of two switch blocks: a core block, and a dedicated server farm block. Both switch blocks contained a redundant pair of legacy Cisco Catalyst 6509 chassis switches.

Cisco published end-of-life announcements in 2015 for all original (not enhanced) Catalyst 6500 chassis. Derive determined that the Cisco Catalyst 3560 hardware platforms, which were used by the organization for non-trusted (perimeter/DMZ) switch blocks, had also reached end-of-life. To accommodate a potential relocation of the organization’s offices and data center to larger facilities, as well as in preparation for future growth, the organization was contemplating hardware upgrades for each functional area of its LAN/WAN infrastructure. Simultaneously (in 2015), the organization was also contemplating possible changes to its logical LAN/WAN design.

For Derive’s assessment, several key goals were identified:

• To provide recommendations on how best to improve the performance, reliability, manageability, and/or security of the organization’s network infrastructure in its New York branch office.

• To deliver high-level design options for a “next generation” branch office network architecture, taking into account industry trends, best-practices, and lessons learned from the original design specification for the New York office.

• To utilize the findings from the assessment to streamline and update the organization’s existing LAN, WAN, and perimeter security documentation to ensure that it was accurate and complete. (Derive would also – along with the client’s internal technology team – support the update of the documentation.)

• To utilize the gathered information to generate budgetary estimates for any required replacement hardware, software, licensing, and professional services.

• To identify and enumerate any defunct configurations and unused/legacy equipment that could be decommissioned.

Derive specifically recommended VLAN reconfiguration measures that would rectify configuration inconsistencies (taking steps to ensure that all devices in a particular switch block have consistent VLAN databases), and more efficient Spanning-Tree Configurations (making adjustments to per-VLAN STP bridge priorities).

At the time of the assessment, the organization had outgrown the available office space in its New York headquarters, and was considering relocation to a larger facility. Derive recommended that all of the original business requirements outlined in the 2007 network design specifications should be components of this expansion, including:
• High-speed, secure, reliable transmission of voice, video, and business application data.

• Zero downtime for mission-critical applications—across the U.S. and the globe.

• Support for future growth/enhanced network scalability.

Derive indicated that, in the “next-generation” design specification for the organizations proposed for the New York branch office, it should take into account current industry trends and best-practices, as well as “lessons learned” from the currently deployed architecture.