Dell Hybrid Client:

Bridging The Gap In An Increasingly Cloud Connected World
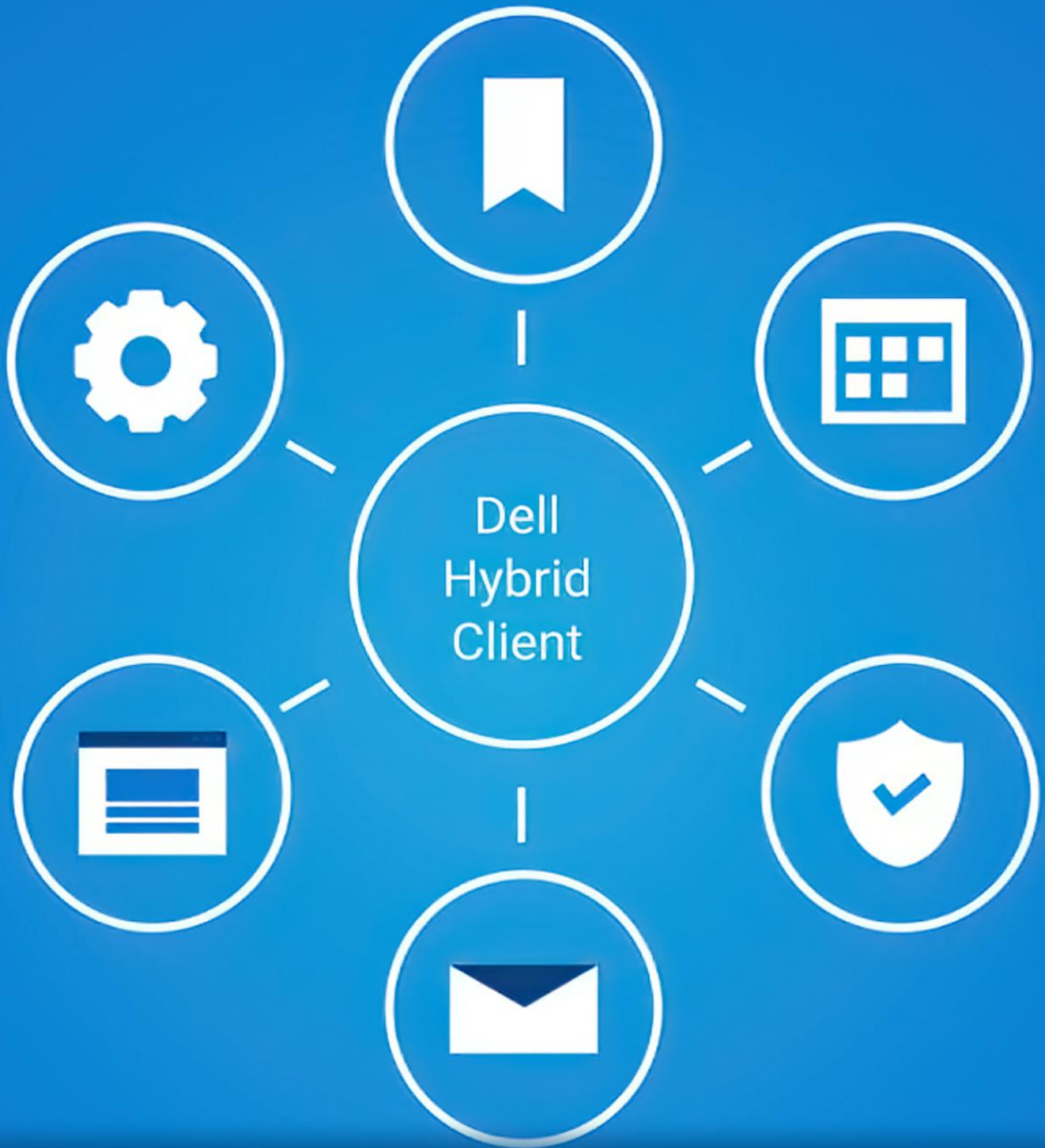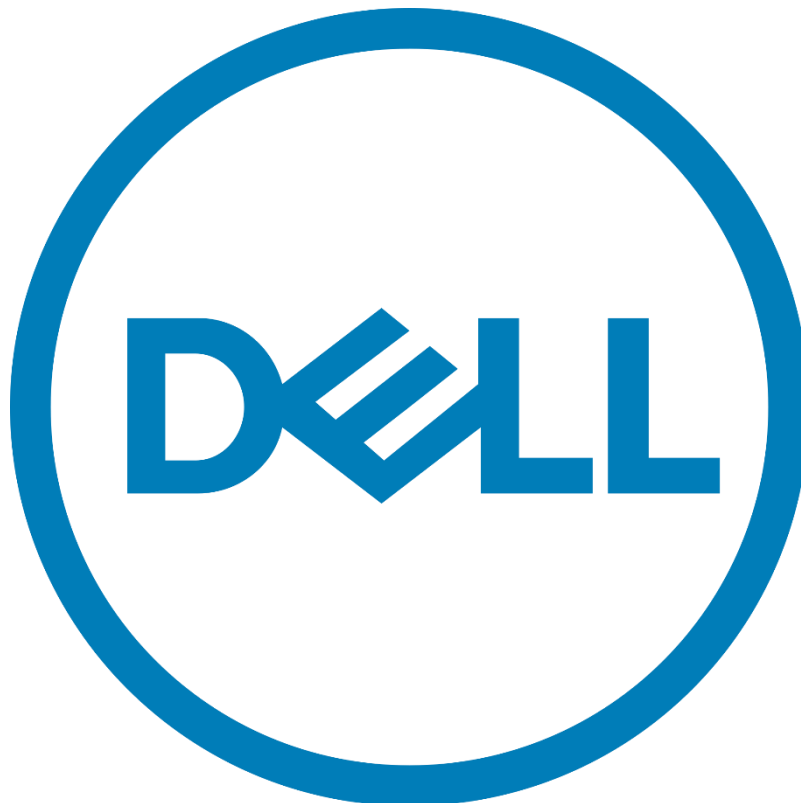
Dell
Hybrid
Client

HOTTECH VISION AND ANALYSIS

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Dell Hybrid Client Shifts The Desktop Paradigm For A Cloud-Centric Future

Virtualization and cloud-based application models increasingly offer higher value to a broader swath of the market versus legacy, local-only compute and storage models. If thousands of users don't need the top-end performance and large storage capacities of powerful workstations and large desktops, why pay for underutilized resources, especially when many enterprise-targeted applications now reside in the cloud? The cost of computing can be leveraged more efficiently from data centers, allowing enterprises to optimize their client systems around utilizing remote services and more personalized, efficient experiences, rather than higher maintenance platforms with specialized capabilities and use cases.

More reliance on cloud-based services, and tying those services to user profiles rather than users themselves, allows for greater flexibility and freedom. Enterprises with thousands of workers are better equipped to implement hoteling and other tactics that let one system serve multiple users, yet still offer a customized and tuned experience.

Concurrently, a cloud-centric model makes it easier for IT to maintain centralized management while decentralizing the workforce, which is becoming critical, as larger numbers or employees begin to work remotely. According to Global Workplace Analytics, work-from-home grew 173 percent between 2005 and 2018, and that excludes self-employed workers.[i] The firm estimates that, as of now in 2020, 75 million U.S. employees (56 percent of the workforce) could work from home.[ii] In doing so, enterprises would realize a myriad of benefits, from protecting public health, to increased productivity, to significant operational cost savings.

Desktop computing continues to play a critical role in enterprises, but the legacy PC model is showing its age and is no longer a perfect fit for every use case. Dell believes it has a better path forward for organizations: the Dell Hybrid Client (DHC), which can bridge the demands of local computing with tomorrow's cost-optimized, cloud-centric models.

Dell Hybrid Client Desktop

Dell Hybrid Client – Evolved Computing For An Optimized Experience

One of the foundation of a flexible, agile office environment is having a common experience across client devices, both in terms of functionality and the user experience, and with equal access to data. Remote workers cannot achieve optimal results by having, for example, one type of work experience when hoteling at the central office, and a lesser experience when performing the same work from home. Cloud-based applications and SaaS offerings have been one popular approach to meeting this need. Ubiquitous cloud mainstays like Gmail, Salesforce, Slack, Microsoft Teams and Dropbox offer similar experiences across different clients. These are relatively low-bandwidth applications with simple interfaces, however, and they tend to perform well through browser front ends running on affordable systems with comparatively modest hardware resources.

For better or worse, not all cloud-based applications exhibit such universality, and application experiences can be negatively affected in several ways.

- Internet conditions and connection quality can greatly impact load times and latencies. This becomes especially important for shared, real-time applications.

- Host conditions, meaning the status of resources on the systems running applications, can vary, especially in public, multi-tenant scenarios. If the provider doesn't manage resources effectively, applications for one user or business may suffer due to spikes or outsize sustained.

- Security across a public medium (the internet) can be compromised, so extra attention must be given to protecting user and data confidentiality.

- Data mobility entails the ability to move user data between applications and platforms. However, different services offer different degrees of data mobility. In some cases, data can become trapped within a service, which poses extra risk if that service should go down, terminate, or be sold to another entity.

- Service levels can be critical for preserving enterprise productivity. The "did you turn it off and back on?" approach to troubleshooting a software glitch may not work as well when the service is running from a datacenter that lacks a 99.999 percent ("five nines") uptime guarantee.

Each of these issues can play particularly critical roles in cloud adoption, depending on the industry. For example, financial and medical firms may be most concerned about security and its role in mandated compliance. An enterprise with 20,000 workers, all of whom rely on a collaborative platform like Slack, can't afford even an hour of service suspension when multi-million-dollar projects or mission critical workflows are on the line.

For such firms, an "all cloud" software strategy (into which we will include virtualized desktop (VDI) solutions) can be limited, just as an "all local" approach may be cost-prohibitive and overly complex from an IT managerial standpoint. The logical solution may be to embrace both approaches. As such, we expect the enterprise market to derive many benefits from client application platforms, such as Dell Hybrid Client (DHC), that seamlessly supports cloud- and local-based processing interchangeably.

Overview: The Dell Hybrid Client

DHC is a centrally managed software platform that enables users of select Dell systems to access their applications and data easily and securely, regardless of where those applications and files are hosted. Currently, DHC can be selected as part of a company's at-purchase configuration for Dell OptiPlex 7070 Ultra (which are based on Intel® Core™ i3, i5 and i7 processor options) and Wyse 5070 client systems (which are based on Intel Celeron and Pentium Silver processor options), with plans to expand into other platforms (including mobile) in future releases. Selecting the DHC option will result in systems shipping pre-configured with a highly-customized and optimally tuned Linux OS, integrated with Dell's DHC software stack. In addition, WMS Pro and Dell ProSupport for Software[III] are included in the Dell Hybrid Client subscription.

Some of DHC's key features include:

- Single sign-on

- A simple, streamlined, yet fully functional user interface

- Aggregated storage and global search

- Centralized management

- Increased security, including optional Intel® vPro® Technology (on OptiPlex 7070 Ultra configurations)

- Application delivery integration

DHC is particularly effective for companies in the midst of cloud transitions, a practice closely tied to general digital transformation.[IV] Companies that leap suddenly into cloud transition can encounter a range of issues, from management limitations across multiple cloud platforms, to severe performance bottlenecks caused by, for example, network and storage constraints.
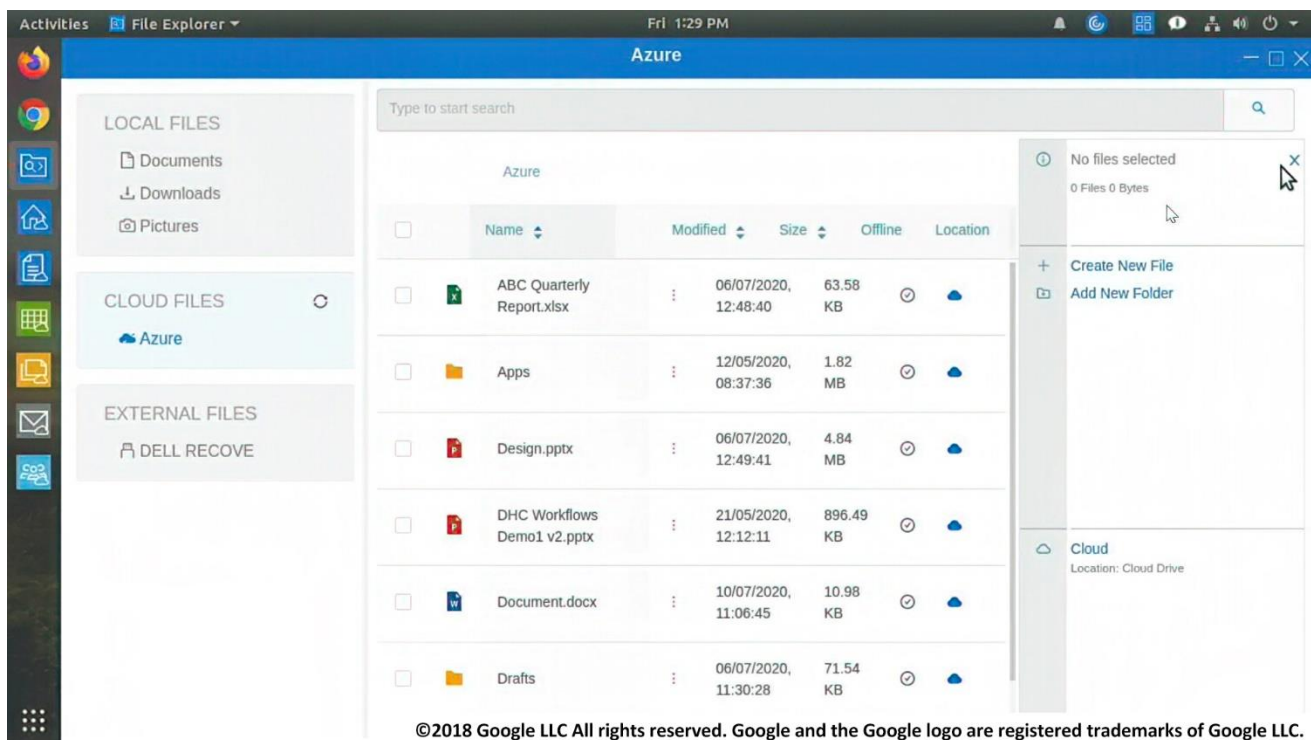
DHC File Explorer

A hybridized platform like Dell Hybrid Client (DHC) increases flexibility, so companies can continue to perform the bulk of their application processing locally if they so choose, then shift some or all of that load to the cloud as needed. DHC's File Explorer, beyond enabling access and sharing of files, gives IT the ability (when combined with file affiliation) to dictate how files open when users access them: via cloud, VDI, or local resources.

Additionally, the system's File Explorer aggregates local, cloud, and network-based shares into a single interface window, for intuitive access to all user data and easy global file searching. The Wyse Management Suite, a cloud-based management solution for configuring and managing Wyse clients, comes included with DHC and helps automate these processes on a per-user basis from a centralized, cloud-based environment.

Because IT can dictate how and where applications open, data can be restricted to opening only as part of a VDI session, for example. This can help with protecting intellectual property and ensuring corporate compliance goals. Other security advantages in the DHC platform include:

- Protection of user and company data through system lock down, browser security, and peripheral restriction

- Application sandboxing to prevent unwanted interactions and system corruption

- Ensuring that apps and content can only be accessed in authorized ways through single sign on, multi-factor authentication, and file affiliation (note that the specifics of this support may vary depending on the software provider)

DHC is designed for worker fleets that likely want a hosted, browser-based experience some of the time, and the consistent, higher performance of a local computing experience at other times. DHC users can access Windows and legacy applications through virtualization. Major supported cloud providers include Microsoft Azure and Google Cloud Platform. DHC also supports VDI solutions from Citrix, Microsoft, and VMware, through integrated VDI clients. These clients can be controlled through the included Wyse Management Suite (WMS) Pro[v], which also enables access to Microsoft Office 365, Google productivity applications, and any browser shortcut.

Dell OptiPlex 7070 Ultra

Dell Hybrid Client Use Cases

HTVA has written at length about the Dell OptiPlex 7070 Ultra and its many possible usage scenarios.[VI] For this study, however, suffice it to say that the system is a fully configured, impressively compact client PC based on Intel Core processors, designed for complementary Dell monitors that conceal the 7070 Ultra compute elements within or beside their stands. The Dell Wyse 5070 client, on the other hand, integrates Intel Celeron or Pentium Silver processors, a platform sufficient for a single 4K or dual 2K displays, but with the bulk of application processing is likely pushed to the server side. Both systems are positioned for competitive value and broad, business-targeted functionality, but which system (and specific model) is most appropriate for a given user will depend on the specific use case and application workload. The addition of DHC to these systems opens a wealth of use case opportunities. In the following segments, we'll discuss these opportunities across three general worker types and examine several occupational use cases within each type.

The Task Worker

As the name implies, task workers generally perform simple tasks with high levels of repetition. Task-oriented jobs tend to be stationary and involve only a few applications (potentially only one) that require relatively few system resources. Task work generally pairs well with VDI models and a client hardware solution like the Dell Wyse 5070 with DHC. A local browser provides a sufficient front end for secure application access. Data and storage loads will be light enough to alleviate the need for local processing or retention. Multiple task workers can use these systems throughout the day without sacrificing performance, security, or the user experience.

- **Call center:** Even before 2020, this occupation was on its way to being both localized in group offices as well as alternatively remote and cloud-based. According to one September 2019 UCToday article, cloud-based contact center market growth was compounding at almost 24 percent annually.[VII] The DHC model plays well here, as it gives workers a quick, streamlined setup process, an intuitive user experience, and easy support from centralized IT, regardless of if that setup is on-premises or remote. As long as the user has sufficient internet connectivity, the Wyse 5070 with DHC will provide more than enough capability to support call center communications tasks and applications.

- **Data entry:** In many ways, data entry jobs are much like call center tasks, only without the same level of communication. Workers receive source materials, enter and update data into database fields, check data for accuracy, and purge data if redundant or no longer needed. Most work is text-oriented and thus a fine fit for remote execution, requiring only a modest client. However, given that data entry tends to be a large-volume task, high manageability like that of the DHC platform is a priority, as downtime can be costly. Similarly, some businesses will be inputting sensitive and/or proprietary data, so platform security is also paramount and a locked down OS with DHC can prove highly valuable here. Dell will be extending DHC's security abilities with near-future updates to better enable persistent local user accounts, which will be of particular interest in use cases like data entry.

- **Retail/Point-Of-Sale:** From gas station chains to big box retail, every checkout desk, stall, or kiosk needs the modern equivalent of a cash register, complete with the ability to track inventory SKUs, process transactions, browse corporate web sites, and pass data to centralized operations for analysis. Most work here involves little more than entering and completing sales transactions. However, deployment environments are often crowded and sometimes prone to environmental factors. Unless an OS-based "kiosk mode" (as in Windows) is mandatory, the small footprints of Dell's DHC offerings can help here, as will their sturdy construction and availability of solid-state storage.

- **Warehouse:** Warehouse management systems control warehouse operations and distribution management. They pick up where conventional spreadsheet systems leave off, so workers don't necessarily require any spreadsheet knowledge. While some elements of warehouse management span into productivity measurement and facilities control, basic tasks focus on workers handling "pick and pack" orders and logging SKU movements between locations. DHC offers a cost-effective way for warehouses to transition from legacy, vendor-locked systems to a platform better able to adapt to modern needs, with new client types able to leverage the savings and efficiencies of VDI and cloud SaaS models.

Knowledge Worker

Compared to task workers, knowledge workers exhibit more creative and/or synthetic thinking in their roles. They're likely to need more and disparate types of information at their fingertips, which they will then aggregate into new forms of content. In short, knowledge workers tend to be white-collar team members.

Because knowledge work is likely to benefit from collaboration, unified communications become more important. This emphasizes real-time performance and responsiveness, especially when screen sharing and video are involved. Knowledge workers will create and contribute to larger, more complex documents, often with multimedia elements. Richer content may require more displays, each working at comparatively high resolution. Knowledge workers are also more likely to keep multiple browser windows and other resource files open during work, all of which adds to the processing load. Some of this work may be done over VDI, but there may be specific applications (including SaaS applications) and/or task instances that require local processing support. Thus, the OptiPlex 7070 Ultra with DHC can provide the same level of convenience and manageability as the Wyse 5070, but it will also better accommodate scaling workload needs over time.

- **Hospitals And Health Care Providers:** As 2020 has forced many segments of the healthcare industry to cultivate remote rather than in-person patient interactions, we expect healthcare providers to increasingly realize the benefits of a remote model. Whether remote or in-clinic, though, these professionals will need access to records, reference resources, high-res diagnostic scans, and other content that may require more robust local processing while simultaneously emphasizing patient confidentiality and the need for immediate IT support. The OptiPlex 7070 Ultra with DHC would service these needs while preserving a clean, professional work atmosphere, especially after the platform's coming integration of VPN functionality.

- **Engineers:** From civil engineering to oil and gas exploration, engineers rely on a high amount of collaboration, which makes a centrally managed, globally distributed platform like DHC a natural option. In fact, cloud-based engineering software may offer collaboration options lacking in traditional standalone desktop alternatives. Prominent software within engineering includes Python, MATLAB, Microsoft Excel, Mathcad, and a range of computer-aided design (CAD) titles. According to an article on the G2 Research Hub, cloud-based CAD will grow from 13 percent adoption in 2019 to 30 percent over the following three to five years.[VIII] Moreover, G2 users found cloud-based CAD easier to use and far more able to meet requirements. Certainly, CAD and similar engineering tools are notoriously resource-intensive, so it follows that large engineering organizations may wish to fine-tune how and where those resources are applied to keep workers at their most productive and profitable. The Dell DHC platform offers this flexibility.

- **Legal Professionals:** Legal is yet another field in which the march from legacy to cloud remains in transition. Popular practice management platforms like HoudiniESQ that span from invoicing to workflow automation come in both local and cloud-based variants. Many packages also offer secure client portals for communications, billing, and materials exchange. Security is critical here, so the added security measures of DHC come into play, especially for firms needing to keep large numbers of attorneys and paralegals working from home. Legal professionals also need extensive access to legal databases and research, so the ability to keep multiple applications and windows active on a system such as the OptiPlex 7070 Ultra, as well as display those applications across multiple displays, becomes key. (Note that Dell-backed research found up to a 21 percent productivity benefit when using the OptiPlex 7070 Ultra with dual displays.) Additionally, quick access to remote support will prove critical when billable hours become paramount.

- **Retailer:** Retail makes another appearance in this category, although now the tasks have evolved. Even before 2020, brick and mortar retail was scrambling for ways to provide superior value to e-tail alternatives. One approach was (and increasingly is) to turn old school, passive store attendants into knowledgeable shopping counselors. A checkout clerk can't compete with an e-tailer's lower price and hundreds of product reviews, but he or she can guide shoppers to a tailored, "expert" outcome if equipped with the right knowledge. In-store guidance, in part relying on web-enabled kiosks, can be part of this experience. In short, the role of the retail worker is transforming, especially for big box outfits, and quick access to broad, deep information from a range of sources will be pivotal in this process. Because shoppers want a clean, simple experience with no lag (just as they do online), a platform like the OptiPlex 7070 with DHC can be a core element in transforming today's retail work. The Ultra PC mounted to a sleek Dell display arm, with an offset VESA mount and a quality touch monitor, would likely promote more productive engagements between workers and customers and result in more welcoming, interactive experiences.

Power Worker

Power Workers are like knowledge workers, only their tasks tend to be even more compute-intensive and performance-oriented, especially when it comes to data visualization. As many power workers are either creators or managers/executives, work time is valued at a premium, so the need for local processing may be prioritized. Additionally, aesthetics and preserving a minimalist desk space will be more prized.

Part of the 7070 Ultra's ability to balance high performance with an ultra-small form factor stems from its adoption of the Intel® 25W mobile architecture (specifically, Intel® Mobile U processors). Quad-core, 8th Gen Intel® Core™ i7 processors offer businesses performance, manageability, built-in security features, and excellent stability and reliability. These factors, combined with the need for fast IT support/management and support for a broad range of applications, all contribute to making the OptiPlex 7070 Ultra with DHC an solid solution for a future-proofed power worker productivity roadmap.

- **Content Creation:** From 3D explainer videos to marketing platforms like Ceros to AWS's Studio in the Cloud, content creation continues to migrate away from GPU-heavy workstation PCs and into more scalable cloud platforms. We are not yet to the point where 8K video editing can be done efficiently from the cloud, but SaaS-based content creation continues to gain ground—enough that many creation jobs can now transition to sharing loads between a cloud platform and the local front end of an OptiPlex 7070 Ultra. This allows large enterprises and universities to keep their capex investments lower when equipping hundreds of seats with content creation capabilities and focus on managing and scaling those resources as needed.

- **AI Analysis:** Without question, AI continues to advance as a critical business tool. Management and executive staff rely on AI in various forms from supply chain management to sales analytics. The heavy lifting of AI gets done in data centers and cloud-based services, but even the output can be visually rich and then require a capable system able to weave that output into other media and applications. With its strong processor base and fast NVMe storage, the OptiPlex 7070 Ultra can tackle the AI-centric tasks power workers increasingly need but do so in way that doesn't physically impose on their offices or sacrifice the security that handling such data likely requires.

- **Marketing:** While a distinct work function, high-level marketing increasingly shows significant overlap with content creation and AI/analytics. For example, the Adobe Experience Cloud (formerly Adobe Marketing Cloud, formerly Omniture), is a great example of how one centralized SaaS offering can accommodate the broad marketing needs of hundreds of users within an enterprise, spanning advertising, analytics, content management, and customer targeting. While marketing has traditionally been done face-to-face in large offices to better promote group collaboration, that may not be an option in the present climate and may not be for some time to come. Collaboration remains essential, though, so a tightly managed platform like DHC, woven between capable client systems, may prove to be a better option for large firms needing to let power workers share in project development simultaneously, especially when those workers can get single sign-on capability via SaaS web pages.
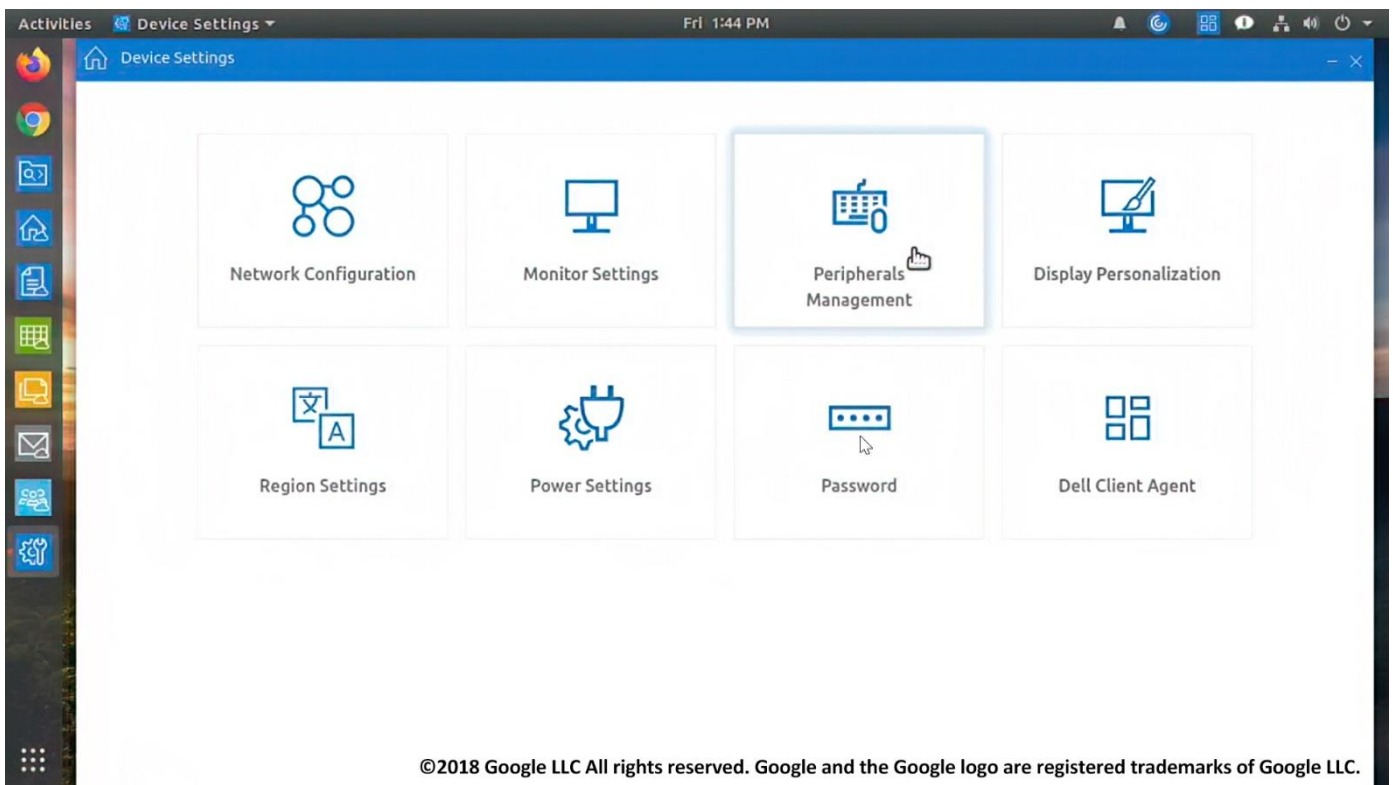
DHC Device Settings Menu

In reality, organizations would likely deploy large numbers of DHC clients across many of these worker types and use cases simultaneously. Pharmaceutical firms, for instance, will need task task-oriented clients for accounting and stock management, knowledge-oriented clients for management and mid-level management, and power-oriented platforms for drug analysis and R&D. DHC can service all of these levels and applications while supplying a single management experience for IT. Also, because the user interface flows so easily and transparently between workstations, there may be far less need to equip workers with system seats, further lightening the organization's capex and opex load.

The Many Benefits Of The Dell Hybrid Client

As we have seen, the Dell Hybrid Client platform marks a new approach to client computing for corporate or large education markets undergoing multiple paradigm transformations. The results of DHC adoption and deployment will likely include:

- **Lower Deployment Cost:** A DHC client arrives already configured and ready to run. After initial boot-up and sign-on, the system self-configures to match the image and experience set out by the purchasing company's IT department.

- **Optimized Client Hardware Cost:** Customers can estimate the likely near-term resource needs for known client workloads and tailor their hardware component choices around required performance levels.

- **Optimized Software Cost:** The DHC platform alleviates the need for extraneous endpoint software spending, as there's no need for unnecessary or redundant software licenses. Users also realize cost-effective application updates via centralized management, and organizations can right-size their SaaS deployments.

- **Simplified Operation And Higher User Productivity:** Dell's DHC ecosystem intends to offer a simpler, more cost-effective alternative for cloud/SaaS work fleets, relative to traditional Windows-based client deployments. Dell's highly-tuned Ubuntu OS user interface is, in many ways, cleaner and simpler than most Windows experiences. This translates into higher productivity for workers and less burden for IT in deployment.

- **Optimized VDI Infrastructure:** As noted earlier, the DHC platform embraces VDI's advantages, but it is not a pure VDI-centric model. Rather, DHC allows deploying enterprises to use VDI where cost-effective, without locking other workers and use cases within VDI's limitations. DHC also provides an easy way for organizations to dial VDI use up or down over time, as needs and conditions change.

- **Faster Return On Investment:** By allowing IT to deploy applications into the DHC desktop and control where and how those apps run, organizations have more granular, dynamic control over their computing costs. All of the above adds up to lower total deployment costs, lower ongoing operational expenses, and thus faster time to realize total solution value.
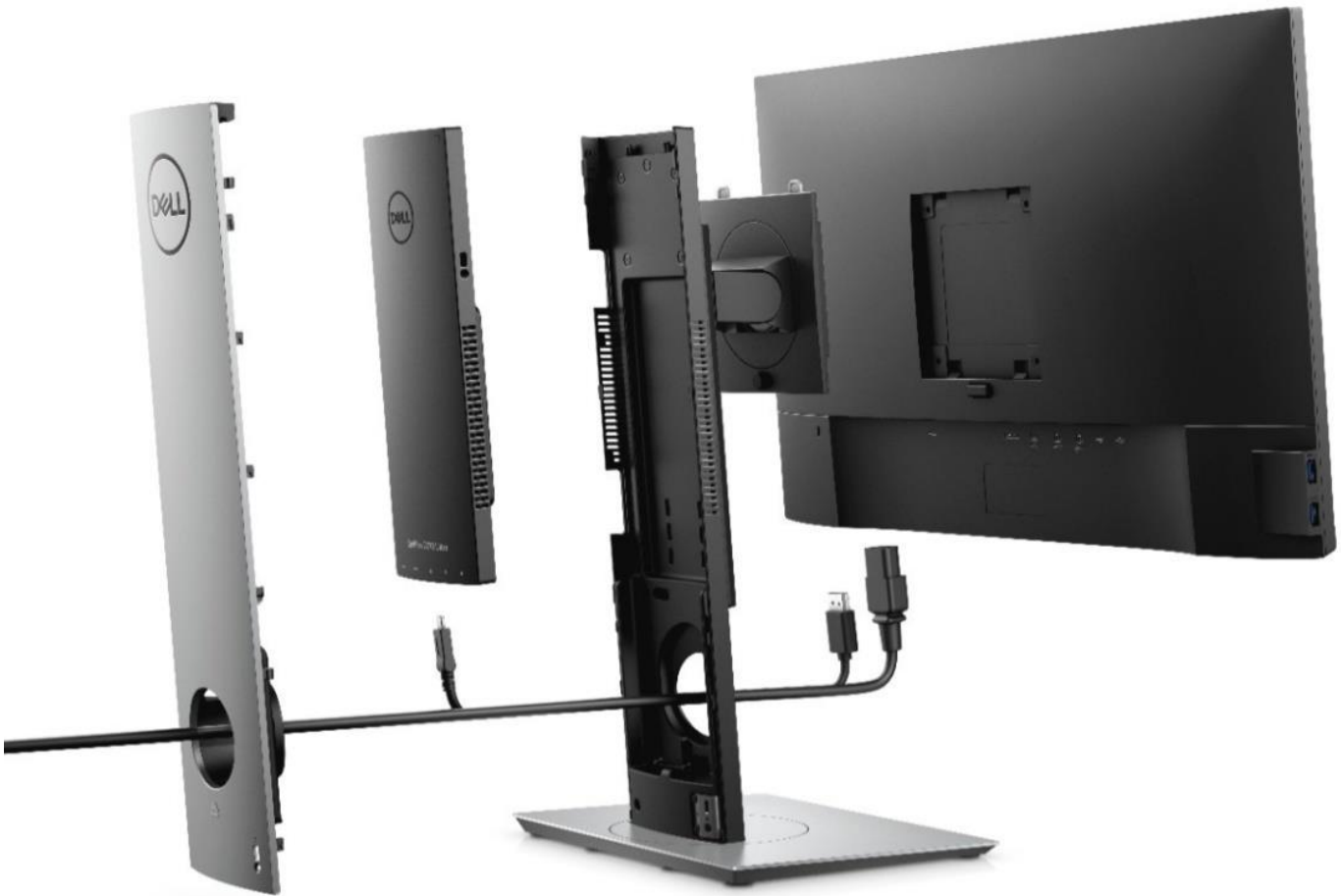

Dell Wyse 5070

DHC Analysis And Conclusion

The Dell Hybrid Client platform, as supported through the Wyse 5070 client and OptiPlex 7070 Ultra today (with more systems to follow), can meet current and future corporate requirements, ranging from more distributed workforces, to the growing need for cloud-based client computing. By giving large enterprises the ability to balance application execution between the cloud and the local client, IT can better match user needs against hardware costs and operational expenses in cloud resources. Simultaneously, users will enjoy a capable, user-friendly system that provides faster, more reliable performance with their customized data and environment carried over, while DHC-powered organizations will find themselves with easier management, improved data security, and superior ROI.

The DHC platform marks an important evolution in the industry's march from legacy limitations into a cloud-driven future. It's a model we expect will spur much evolution and emulation.

Dell OptiPlex 7070 Ultra

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