



CD PROJEKT RED

Designers, programmers, graphic artists, testers and other professionals working on CD PROJEKT RED’s best-known games such as *The Witcher 3* or *Cyberpunk 2077* use Intel-powered hardware solutions from Dell and Dell EMC

SUMMARY

Industry

Video game development

Organization size

- Approx. 700 employees worldwide of CD PROJEKT Capital Group
- PLN 583 903 000 in sales revenue for the CD PROJEKT Capital Group in 2016
- PLN 250 514 000 in net earnings

Business challenge

- The requirement to use highly reliable workstations
- The need to implement a higher-performance network infrastructure

CD PROJEKT RED has been systematically upgrading its IT hardware with solutions from vendors including Dell and Dell EMC. The company’s main focus is on high performance and stability of the hardware as well as a high level of support. Some of the most popular titles from the renowned Polish game studio have been created using Dell and Dell EMC workstations, monitors and server/network solutions. Games developed using Dell and Dell EMC hardware include *The Witcher 3: Wild Hunt*, the *Hearts of Stone* and *Blood and Wine* expansions, as well as *GWENT: The Witcher Card Game*. Today, Dell and Dell EMC products support projects including CD PROJEKT RED’s next production: *Cyberpunk 2077*.

“We expect our developers’ computers to provide excellent performance. The better the hardware we have, the more efficiently we can work. In addition, we want all our workstations to follow the same standards. It is important to us that the computers share a similar configuration. At the same time, the CPUs, RAM and HDDs are tested for performance and reliability,” says Maciej Makowski, IT Manager at CD PROJEKT RED. Hardware standardization makes it easier to manage the workstations and configure them for different departments. “Dell also enabled us to create a custom configuration which was tested by the manufacturer in terms of performance,” he adds. The development team at CD PROJEKT RED has been using Dell Precision T3610 workstations since 2014. In 2015, the decision was also made to purchase additional, higher-performing Dell Precision Tower 5810 machines.



AVAILABILITY AND PERFORMANCE

The number one issue for the CD PROJEKT RED team is the reliability and availability of the hardware used by its developers. When it comes to mitigating the potential

THE SOLUTION USED

- Workstations: Dell Precision T3610 (x58) and Tower 5810 (x209)
- Laptops and ultrabooks: Dell Latitude 5450, 5550, E5470, E5540, E5570 and E7470 (x94 in total)
- Monitors: Dell E2216h, P2417h, Se2216h, U2412m and U2917w
- Servers: Dell EMC PowerEdge R420 (x6), R430 (x89), R520 (x4), R530 (x13), R630 (x6), R720 (x2), R730xd (x1) and T330 (x12)
- Storage: Dell EMC Storage SC120 (x4), SC220 (x2), SC2020 (x2) and SC4020 (x2)
- Modular switches: Dell EMC Networking C9010 network director (10 slots); S5000 (converged modular LAN/SAN switch)
- Dell EMC Networking Line Card, 24x 10GbE (SFP+ ports) for the C9010
- Dell EMC Networking C1048P rapid access node, PoE+, 48x 1GbE and 2x 10GbE (SFP+ ports)

consequences of hardware failures, additional support and maintenance services provided by Dell can be very helpful. These include “Keep Your Hard Drive”: a maintenance service which ensures that when a disk drive is replaced due to a malfunction or performance degradation, the faulty drive (which may contain confidential information) does not leave the company’s premises.

“When a hard drive fails, we put it away in a storage room, so the data remains under our control all the time. This is important as we are working on games which will be put on the market several years from now. An information leak would expose our company to considerable financial losses,” says Maciej Makowski. “At the same time, we still enjoy short maintenance response times, and the ability to eliminate downtime caused by potential hardware failures delivers business value which is hard to overestimate.” The Dell Precision Tower 5810 workstations also come with additional protection against main memory errors in the form of Reliable Memory Technology, which minimizes the impact of potential RAM errors on the user’s work.

Dell workstations are used by both developers (artists, programmers, animators, designers, testers) and back-office personnel; they are also part of a computing farm used for game processing and compilation. “Our farm processes all the work performed by every person involved in the project, creating an executable version of the game for further development, and runs initial tests. No actual person could put greater stress on the hardware than these applications do. The build machine farm operates 24 hours a day, so the underlying hardware has to be stable, tested and reliable. Some of the hardware products are Dell workstations,” says Maciej Makowski.

READY-MADE WORKSTATION IMAGES FOR EACH DEPARTMENT

When it comes to performance and stability in both development and data processing scenarios, it is important to note that the Dell Precision Tower 5810 workstations used by CD PROJEKT RED are powered by Intel Xeon CPUs. “This line of CPUs is designed with server solutions in mind. The CPUs are made from the best pieces of silicon and intended for round-the-clock operation. Intel Xeon chips make it easier to create complex designs. To us, the machines’ ability to operate without interruption under maximum stress is just as important as their performance,” says Maciej Makowski.

CD PROJEKT RED places a heavy emphasis on availability due to the high complexity of the software it develops, which involves many specialist roles. The tasks are highly interdependent, which means that any delay in one department makes it





OUTCOMES AND BENEFITS

- Increased reliability of the IT environment
- Reduced downtime
- Scalable, high-performance network architecture



necessary to reorganize work in other areas. “Graphic artists, programmers, animators and designers work on a single repository. They download the data they need, do their work and then, after signoff, upload the results back to the repository. This means that a failure of even a single workstation can put other people’s work on hold. It can happen, for example, when an animator is waiting for the results of a designer’s work, and the designer, in turn, has to rely on changes being implemented by a programmer,” Maciej Makowski adds.

Where possible, computer game development is divided into relatively small steps to make the entire process more dynamic. The central system also supports per-file versioning and provides the ability to go back any number of steps in a process. “If a machine takes an hour longer to render the graphics, the cost is still much less than if a longer delay were to happen as a result of a hardware failure. Since we have identical workstations with system images readily available for each department, we can quickly restore our organization’s productivity in the event of a failure,” says CD PROJEKT RED’s IT Manager.

NEW, HIGHER-PERFORMANCE NETWORK INFRASTRUCTURE

CD PROJEKT RED’s IT infrastructure uses not only Dell workstations, but also other components supplied by Dell and Dell EMC. These include Dell Latitude laptops and ultrabooks, monitors, Dell EMC PowerEdge servers and storage solutions.

The upgrade and remodeling of the network infrastructure was a major step towards creating the most comfortable and stable working environment possible for the entire CD PROJEKT RED game development team. The changes were made in order to ensure fast and seamless data interchange within the organization. “In our industry, network performance is extremely important. To do their jobs, developers need to download up-to-date data from a central repository at least once a day. When their work is complete, they upload the results back to the repository. Our build machine farm also uses the same system. This is why any delays resulting from inadequate network performance are unacceptable,” Maciej Makowski emphasizes.

As part of the changes introduced in mid-2016, the decision was made to follow the “One Network” concept being developed by Dell EMC. The idea is to build networks using high-performance, scalable and centralized solutions. CD PROJEKT RED chose the Dell EMC Networking C9010 modular switch, which not only unifies the administrative layer, but also provides the required infrastructure redundancy and offers easy upgradeability. The company’s network infrastructure was also expanded to include high-performance, converged and scalable Dell EMC Networking S5000 devices, which combine

LAN and FC technology in a single product. The module responsible for network logic uses Intel hardware solutions. This architecture made it possible to unify the network and ensure appropriate infrastructure redundancy in case of a failure in any single component. Redundancy and modular switch design are essential to ensuring uninterrupted operation of the infrastructure and enabling its development.



“We use a central modular switch from Dell EMC that combines high availability with easy upgradeability and support for higher bandwidths. Additional value comes from the unification of our environment, which contributes to the increased reliability and predictability of the network layer,” adds Maciej Makowski.



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