Siemon End-to-end modular design for high performance Data Centers

Модульное end-to-end проектное решение для ЦОД

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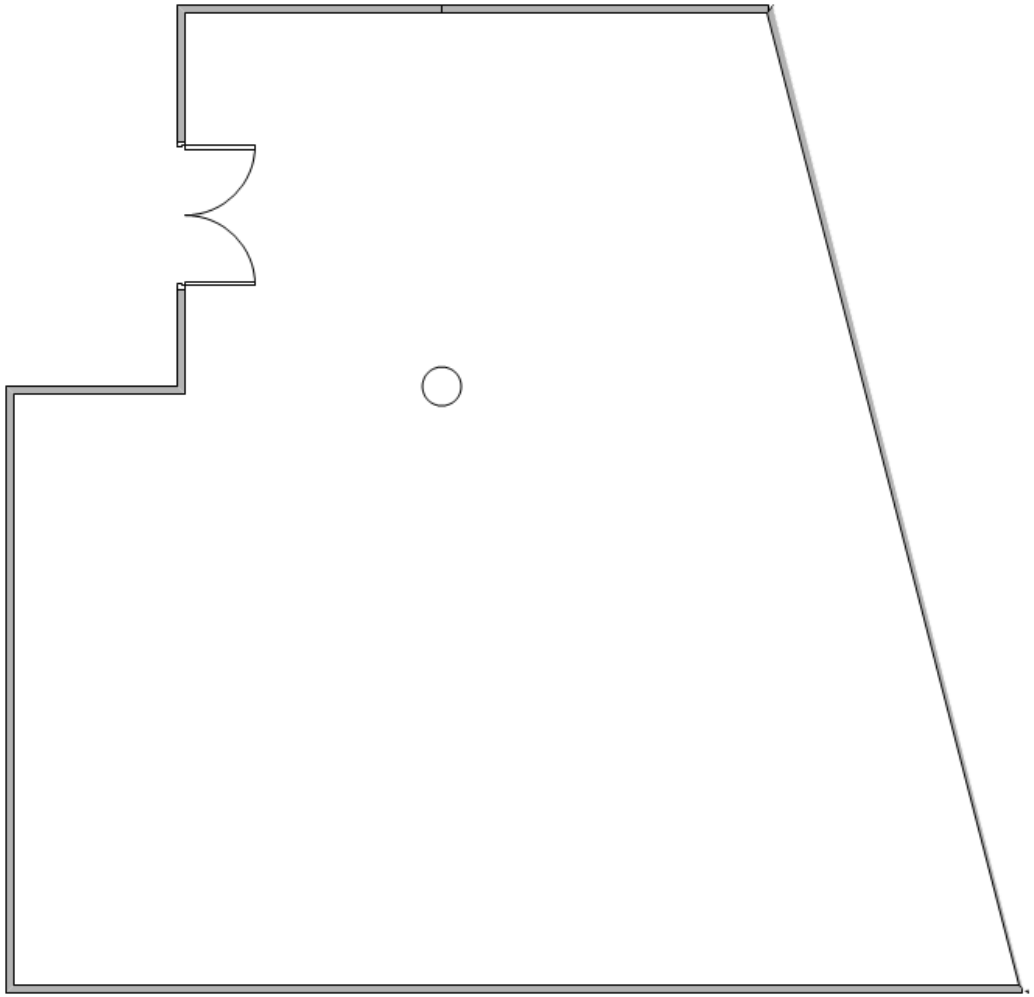
Для кого нужен этот сервис?

- **Для конечных пользователей (end-user)**
- Обсуждение и проработка различных вариантов и **до** стадии проектирования
- Понимание бюджета
- Сроки выполнения работ и поставки

- **Для проектных организаций и системных интеграторов**
- Техническая поддержка на всем протяжении проектирования
- Гарантированно верный подбор компонентов
- Проверка спецификации

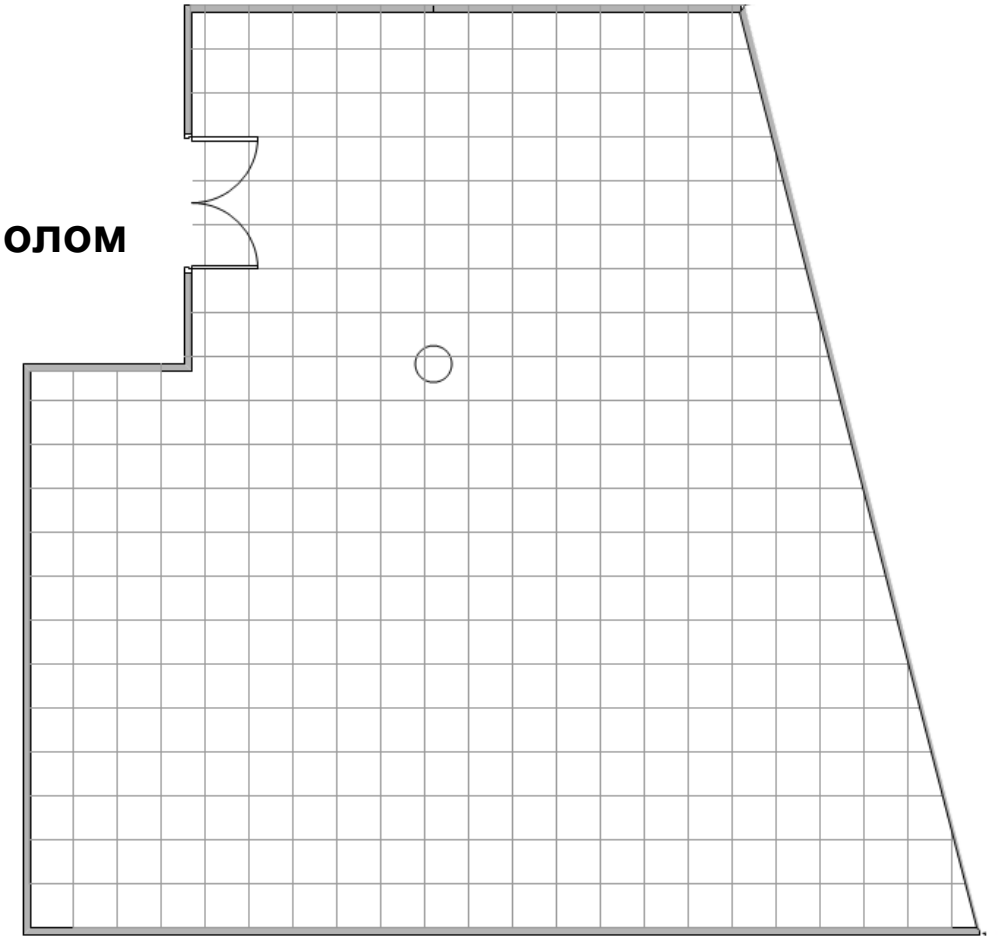
Понимание
Уверенность
Экономия времени и денег

Как это работает. От вас - Планы помещений и Задание

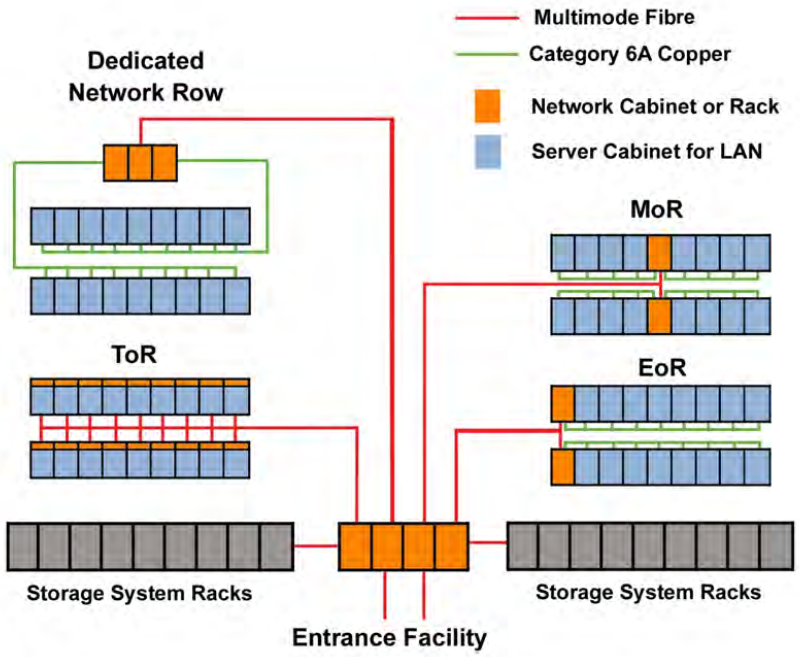


Как это работает. Фальшпол

1. Наполняем помещение фальш полом



Как это работает. Схема сети



Low-density, 144 server cabinets, 14 servers per cabinet		
Material, Power, Maintenance	**ToR (SPF+)**	**EoR (10GBase-T)**
Material cost	$11,786,200	$8,638,300
Annual maintenance cost	$1,655,200	$1,283,100
Annual energy cost	$101,400	$44,400
Total cabling cost (included in material cost)	$1,222,300	$70,300
Total cost of ownership	**$13,542,800**	**$9,965,800**

High-density, 144 server cabinets, 40 servers per cabinet		
Material, Power, Maintenance	**ToR (SPF+)**	**EoR (10GBase-T)**
Material cost	$26,394,000	$21,596,100
Annual maintenance cost	$3,371,900	$2,737,900
Annual energy cost	$177,600	$106,700
Total cabling cost (included in material cost)	$5,123,900	$2,078,200
Total cost of ownership	**$29,943,500**	**$24,440,700**

http://www.cablinginstall.com/articles/print/volume-22/issue-4/features/considerations-for-choosing-top-of-rack-in-today-s-fat-tree-switch-fabric-configurations.html

Как это работает. Шкафы и стойки

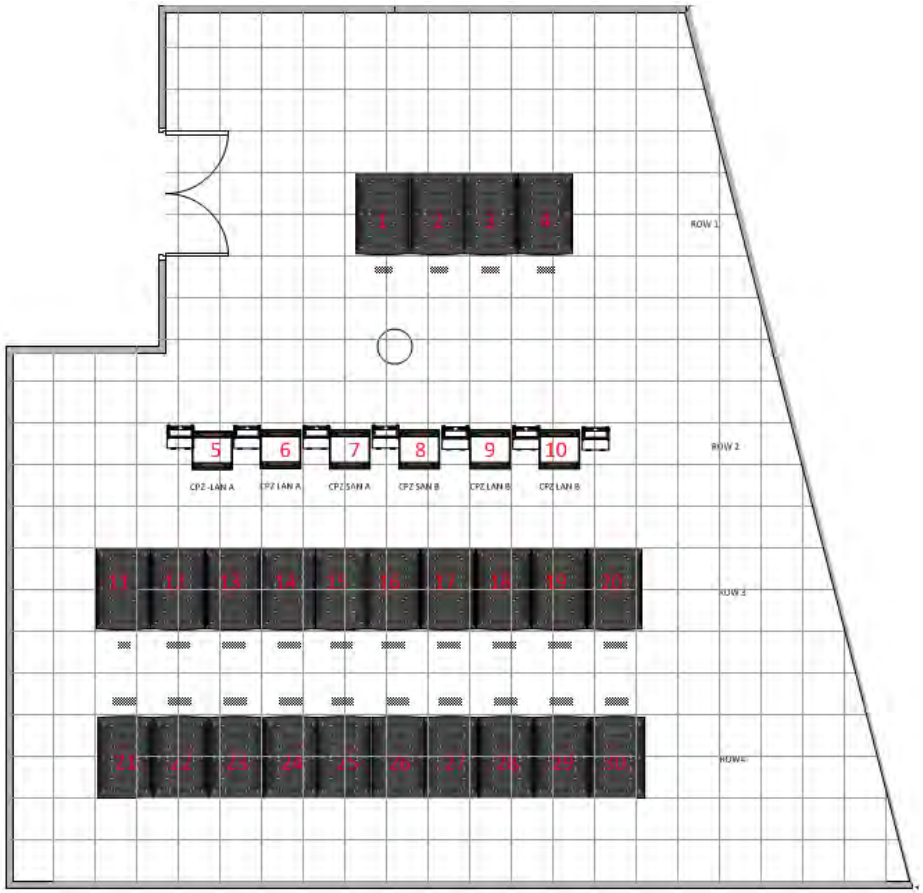
2. Заполняем зал стойками с учетом:

-Конфигурации и структуры ЦОД

-Эффективности используемого пространства

- Конфигурации отдельных элементов шкафа

- Требований по охлаждению оборудовани внутри шкафа



Как это работает. Кабельная инфраструктура

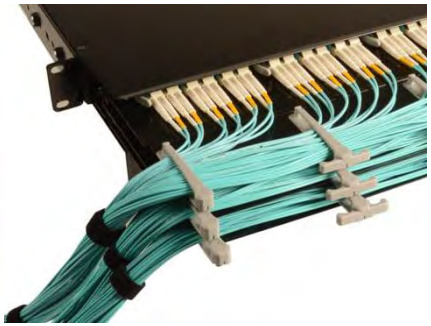
3. Подбор элементов кабельной инфраструктуры с учетом

-гибкости (модульности)

-рассчет буджетов затуханий для ВО

-возможностям перехода к более высоким скоростям передачи данных

-стоимости, времени инсталляции и ROI



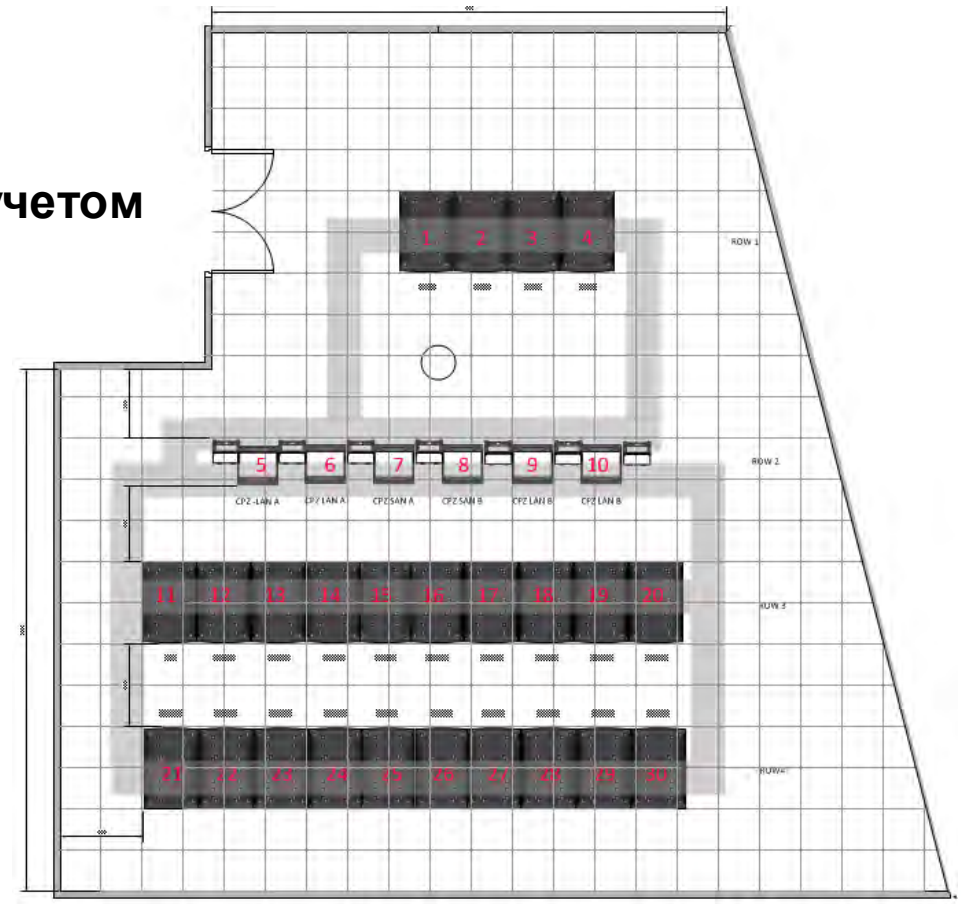
Как это работает. Кабельные трассы

4. Кабельные и лотковые трассы с учетом

-% запаса

-резерверивания при необходимости

-вида и типа кабеля



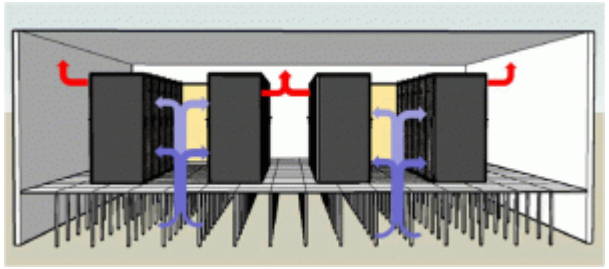
Как это работает. Охлаждение

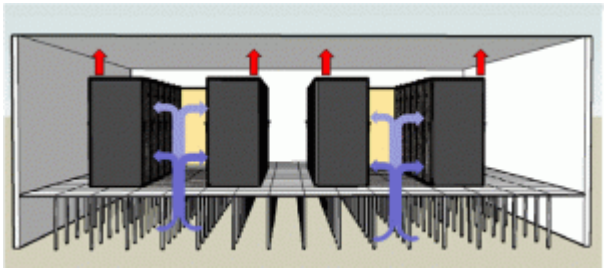
5. Подбор системы пассивного охлаждения

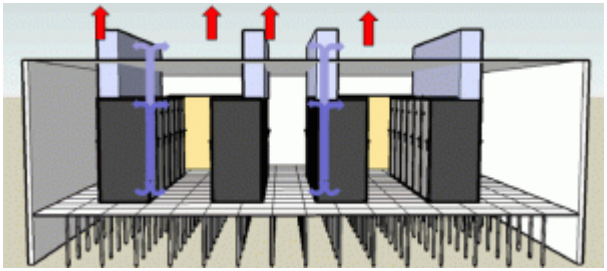
-В зависимости от кол-ва отводимого тепла

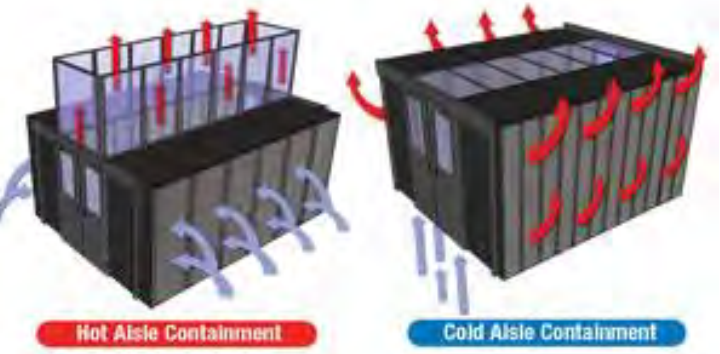
-От конфигурации и подготовки помещения

-От задач

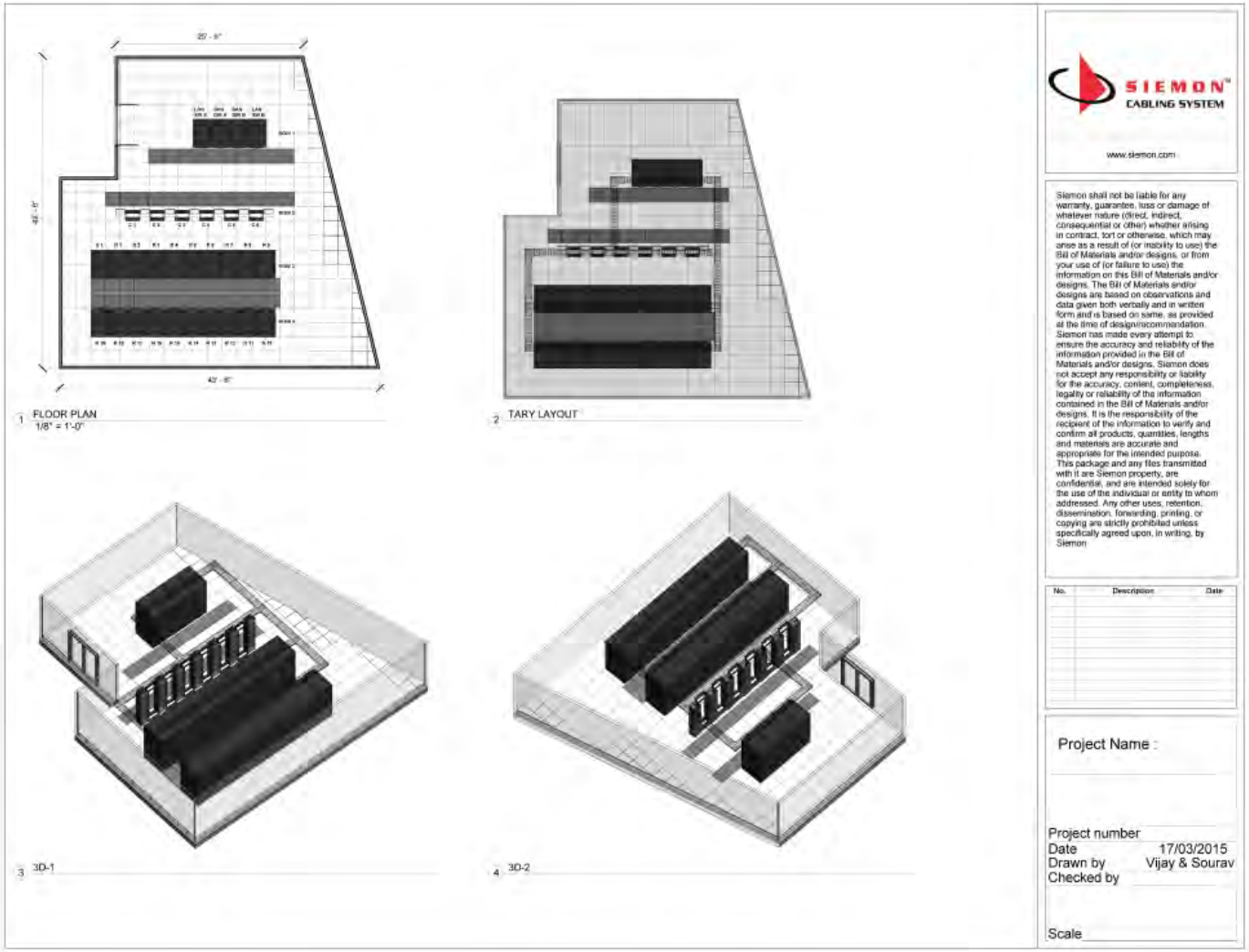








Как это работает. Визуализация.



Выбор правильных компонентов/решений

- Экономия средств (в том числе ROI)
- Понятность и управляемость
- Возможность наращивания и резервирования
- Срок актуальности системы

Разумный выбор блоков PDU

- Снижение Эксплуатационных расходов
- Равномерное распределение электропитания
- Удаленный мониторинг системы и прогнозирование

PDU Function	Basic	Metered	Monitored	Smart	Switched	Managed
Built-In Display for Local Use		X	X	X	X	X
Device-Level Monitoring		X	X	X	X	X
Remote Monitoring via Ethernet Port			X	X	X	X
Outlet Level Monitoring				X		X
Outlet Level Switching/Control					X	X

Пример решения. VersaPod

Особенности и преимущества

- Использование вертикальной зоны между шкафами для коммутации
- Освобождение места в шкафу для установки дополнительнго оборудования
- Сокращение количества PDU

Пример решения. VersaPod

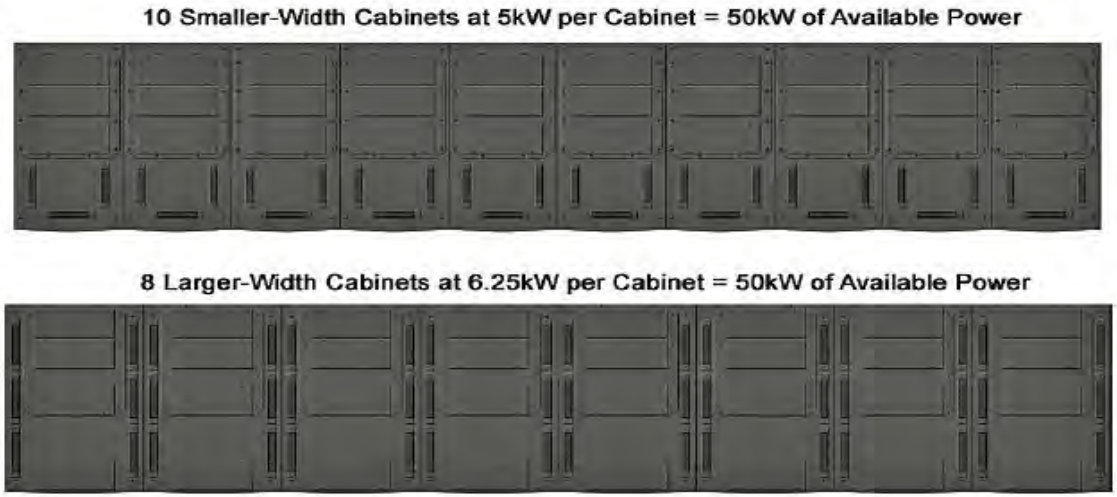


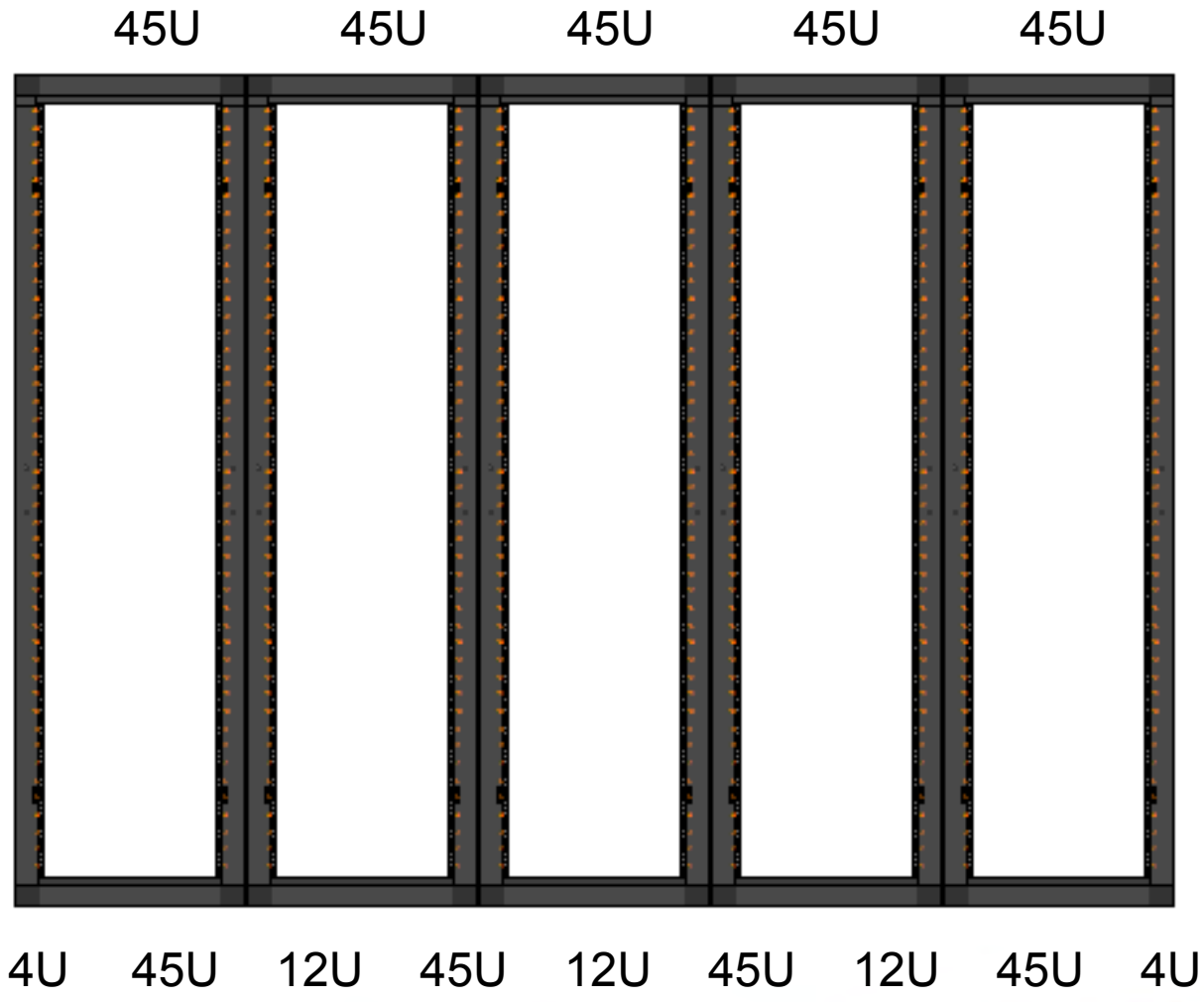
Figure 1: 10 narrow 5kW cabinets and 8 wider 6.25kW cabinets equal the same overall power allocation occupying approximately the same footprint.

10 шкафов по 5кВт каждый 600мм шириной - 10х600=6м
8 шкафов по 6,25кВт VersaPOD – 762х8=6м

Шкаф шириной 600 и с нагрузкой в 5кВт может поддерживать до 12 серверов
Шкаф шириной 762 и с нагрузкой 6.25кВт может поддерживать до 15 серверов

Установим патч-панели

Сравним кол-во доступного пространства



10x600mm cabs
Total available space:
10x45 = 450U

8x760mm cabs
Total available space:
8x45 = 360U
7x12 = 84U
2x4 = 8U

452U

И это только с одной стороны!

Установим PDU

- Решение проблемы неиспользуемой электроэнергии
- Сокращение количества необходимых PDU вдвое
- Сокращение расходов на систему электропитания в целом

Figure 3: VersaPOD Zero-U space with primary and secondary PDUs shared between two cabinets

Преимущества подобной конфигурации

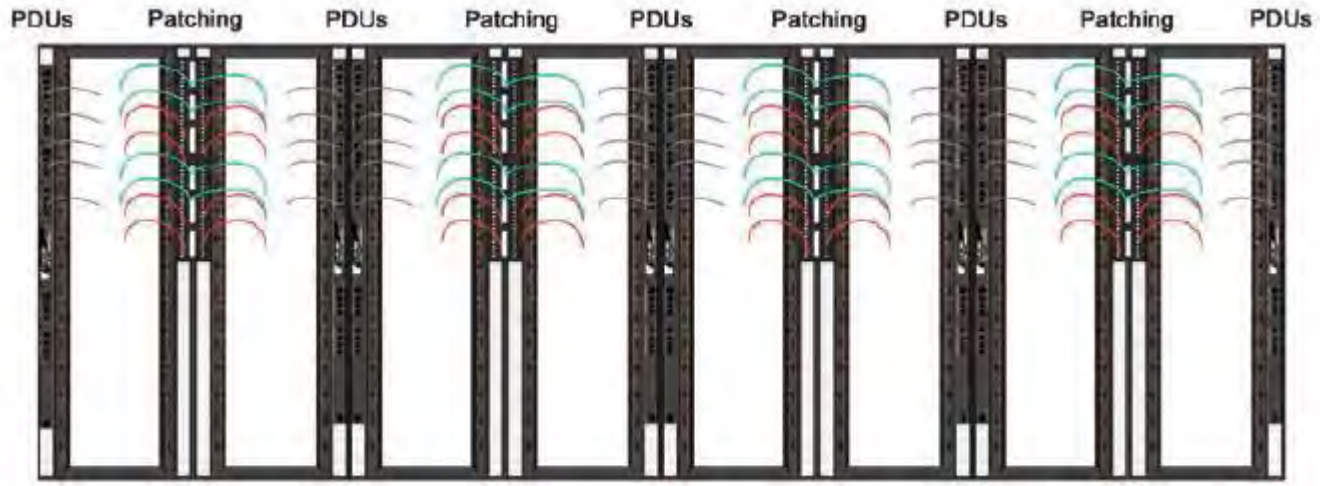


Figure 4: VersaPOD cabinets with shared Zero-U space between bayed cabinets allows PDUs and patch panels to be installed in every other cabinet, while enabling better PDU utilization and shorter patch cords and jumpers.

- Использование более коротких патч-кордов
- Экономия пространства внутри шкафа
- Разделение зон электропитания и СКС
- Снижение расходов
- Помощь в подборе правильной конфигурации

И в результате – снижение расходов на систему

Components Per Pod	VersaPOD 762	600 Wide
# Cabs Arranged in a Two-row Pod	16	20
Linear Dimension of Row	6.1 m (20 ft.)	6 m (19 ft. 8 in.)
# Available RU	1088	900
# Servers / Cab (240 servers per Pod)	15	12
Combo Vertical Copper/Fiber Panel	8	N/A
# Patch Panels	0	20
# Fiber Panels	0	20
# Horizontal Wire Managers	0	40
# PDUs	20	40
Total PDU outlets	600[1]	960
Stranded PDU ports	120	480
PDU Brackets	10[2]	40
1m Patch Cords/Jumpers[3]	960	0
2m Patch Cords/Jumpers3	0	480
3m Patch Cords/Jumpers3	0	480
Total Cost per Pod	$ 162,028	$ 300,722
Cost per RU per Pod	$149	$334
Cost per Server	$ 675	$ 1,253
Total Cost per All 20 Pods	$ 3,240,560	$ 6,014,440

И в результате – снижение расходов на систему

46% экономии может быть реализовано за счет сокращения количества шкафов,

40% экономия может быть реализована с помощью более коротких патч-кордов

75% экономия затрат на потери электоэнергии

Все эти статьи экономии позволяют вам снизить ваши капитальных затраты и эксплуатационные затраты (**CAPEX&OPEX**) при проектировании\модернизации ЦОД а также уменьшить **PUE**

V-Built™- Ready to activate

- **Быстрое развертывание**
  - Сокращает время развертывания вдвое
- **Проще сконфигурировать и заказать**
  - Один уникальный парт-номер
- **Идельно подходит для Дата центров сконфигурированных на основе POD**
  - Поддерживает модульную структуру с повторяющимися элементами
- **Прогнозируемые затраты и качество**
  - Интегрируемое решение на базе оборудования только одного производителя
  - Последовательная контролируемая сборка на заводе
  - Отвечает всем действующим стандартам

В итоге

- **Проект ЦОД должен содержать**
  - Архитектуру оптимизированную под нужды клиента
  - Средне- и долгосрочную перспективу для инфраструктуры
  - Современные технологии, но с возможностью расширения
  - Бюджет/Окупаемость

...а сейчас примеры реализованных проектов с использованием данного сервиса

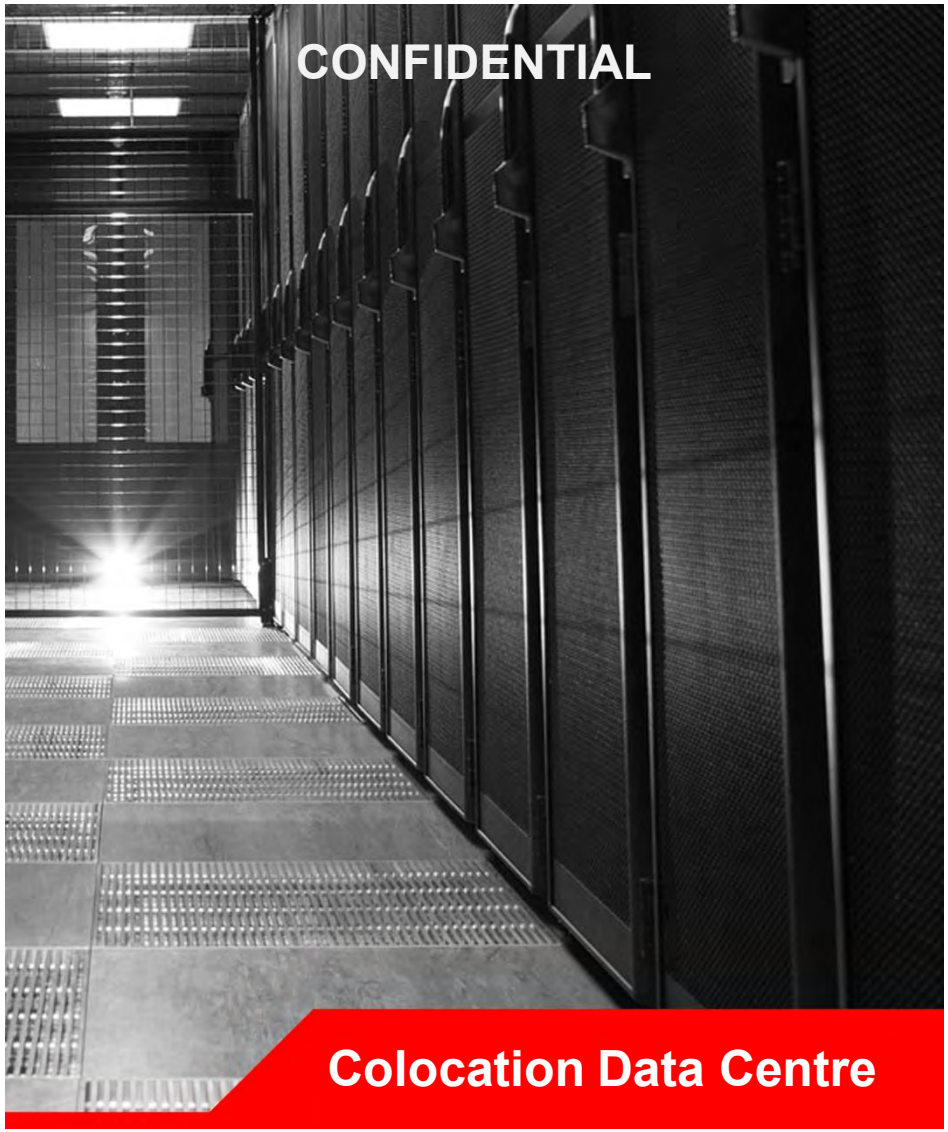
French Corporate Investment Banking Unit in Milan

Location: Milan, Italy

Products: Z-MAX® Cat 6A, OM4 Plug and Play fibre, pre-terminated copper and fibre trunks and VersaPOD® and RS3 cabinets and rack solutions

Project Description: The customer, a leader in global banking and financial services, decided to consolidate a number of local offices and move their 300 employees to a new, much bigger site in Milan. The relocation provided an opportunity to equip the new office with a high performance IT network to reliably support the bank's current and future business activities.

Siemon then developed a detailed DC design which interested the customer as it was fundamentally different from the competitors' proposals. Utilising a **centralised cabling architecture**, the design created a number of key advantages to the bank resulting in a **great reduction in their operational costs in the long term**. The products used enabled a much faster installation process compared to the competition's offering and ensure the customer have an infrastructure in place to allow them to easily migrate from 1 Gig today to 10 Gig as and when they require it. All of their banking applications as well as the trading zone are now supported by this high performance, reliable network.



Leading provider of carrier-neutral data centre provider

Location: Stockholm, Sweden

Products: Z-MAX® and BladePatch® Cat 6A connectivity and pre-terminated copper and fibre trunking solutions

Project Description: The customer is a leading provider of carrier-neutral data centres, operating 27 facilities throughout Europe. One of their clients is a major Swedish bank who, after suffering a fire in their in-house data centre, decided to re-house their complete IT infrastructure in the customer's managed data centre just outside Stockholm.

Every minute of network downtime was costing the client a significant amount of money. Hence the new facility needed to be developed and deployed quickly. In addition to time restraints, they required a **high density**, future proof network which would allow them to utilise **10Gig** when required, without any further changes to the network.

Siemon successfully turned around the complete data centre design and bill of materials in just two days. For optimum future proofing, Siemon included their shielded category 6A Z-MAX copper and OM4 fibre cabling systems, supporting 10Gig and beyond. And for ease of installation and future management they suggested **pre-terminated 10Gig copper and OM4 MTP fibre trunks, reducing on-site installation time by up to 75%**. The project was a great success and has established a future-proof IT infrastructure for the customer for years to come.

Major French Bank

Location: Milan, Italy

Products: Z-MAX® Cat 6A, OM3 fibre cable, pre-terminated fibre trunks and VersaPOD® cabinet solutions

Project Description: Renovation of the customer's existing head office in Milan to accommodate more staff and add a brand new standards compliant data centre provided them the perfect opportunity to upgrade their existing network. To meet the customer's requirements for a future-proof, secure network with low power consumption, consultants specified a shielded cabling system. With real-estate at a premium only 35sqm was available for the new data centre – a situation that called for an **ultra-dense solution**.

The complete data centre design was created by Siemon's DC design services, which provided the customer with a physical infrastructure tailored to their specific needs. Utilising a centralised architecture which meant that all floor and server links would converge in the data centre.

The Italian head office of the French customer now operates a modern network infrastructure that supports employees as well as the broad customer base and is ready to support 10Gb/s when required in the coming years. An extremely tight timeline of 2 weeks for project completion was successfully met without interruption to the customer's ongoing operations.

“Siemon presented the most impressive data centre designs for our Jeddah and Riyadh sites and Siemon's proposed solution performed best against the high standard set by our specification.”

Ahmed Al Hassan, Head of IT at Bank AlJazira.

Finance

Siemon wins Saudi data centre project with Bank AlJazira

Location: Riyadh and Jeddah, Kingdom of Saudi Arabia

Products: VersaPOD® and V600™ Cabinets, Z-MAX® Cat 6A copper cable and connectivity and XGLO™ Plug and Play Fibre cable and connectivity

Project Description: Siemon, were selected by Bank AlJazira to supply a **complete, end-to-end, IT infrastructure** for the bank's new data centres across the Kingdom of Saudi Arabia. This development has been spurred by the bank's strategy for growth and to secure technical advantage in the financial market. Bank AlJazira has chosen to specify a shielded cabling solution, which is a growing trend in the Middle Eastern market. This, the bank says, was selected for its superior performance and security properties; affording the greatest technical lifespan and highest return on investment. Utilising ultra-dense VersaPOD® cabinets and plug and play fibre, the infrastructure has been designed for **maximum space saving, greatest energy efficiency, highest future-proof performance, speed of installation and operational reliability.** The installation for these new facilities focuses on Bank AlJazira's main data centre and disaster recovery data centre, comprising Siemon's high-density VersaPOD cabinets for the patching field, plus V600 racks to house the active equipment. Cabling will include both MTP plug and play fibre, which supports 10, 40 and 100Gb/s applications, plus Z-MAX® copper category 6A F/UTP shielded trunk cables. This shielded solution represents the cutting edge of category 6A cabling, providing the highest margins on all TIA and ISO performance requirements for category 6A/class EA, including critical alien crosstalk parameters.

IXcellerate MOSCOW ONE DATACENTRE

Location: Moscow, Russia

Products: Z-MAX® Cat 6A, OM4 Plug and Play fibre, pre-terminated copper and fibre trunks and V600/800 and RS3 cabinets and rack solutions

Project Description: Opened in 2012, IXcellerate Moscow One is a stand alone carrier and cloud neutral datacentre in Moscow, set over at 15,000m² campus. Datacentre is fully compliant with **IBM's Reliability Level 3** in "design", "construction" and "operations" categories. Service **availability** is guaranteed at the level of **99,999%**.

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The project was a great success and has established a future-proof IT infrastructure for the customer for years to come.

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Location: Moscow, Russia

IXcellerate

MOSCOW ONE DATACENTRE

MOSCOW ONE ДАТА-ЦЕНТР

Спасибо за внимание!!!

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