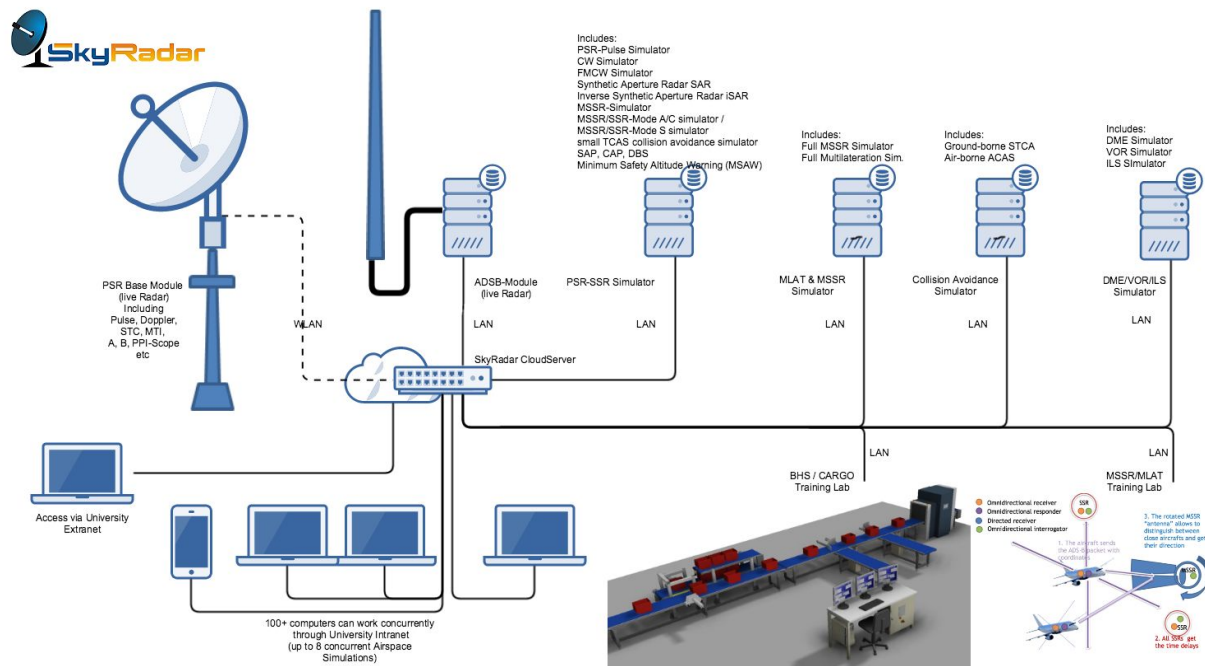# SkyRadar Server Hardware
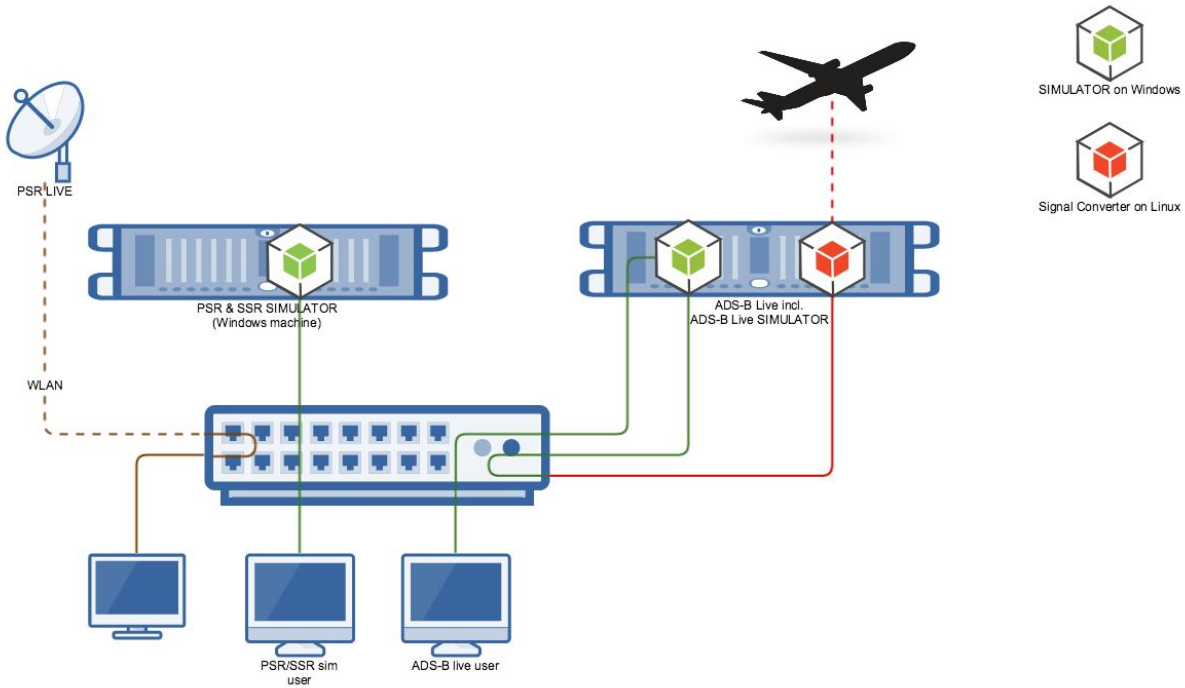
Table of Contents

1. Overview

The server hardware described in this document is used in several applications, including:

a) BHS Training System
b) Cargo Handling Training System
c) PSR & SSR Simulator
d) ADS-B Live Server

In addition to this server, the configuration requires the SkyRadar CloudServer.

The server may operate on Windows or Linux (or both), depending on the application.

The following graph shows the server twice. The left server accommodates the PSR & SSR Simulator (incl ADS-B simulation), the right one accommodates the ADS-B Live Software.

In all configurations, more than 100 client computers can access the system concurrently and operate via the SkyRadar FreeScopes software

2. Hardware

The software is placed on a server with at least the following features. Features might vary based on innovation during time of delivery, but will be equal or better than the following:

Qty	Component	Details (features may be updated or improved before delivery based on technical innovations and improvements)
1	Body housing	19" RM-136 1HE,o.NT, 4xHDD
1	Board	Supermicro X10DRL-i S2011-3 ● Dual socket R3 (LGA 2011) supports Intel® Xeon® processor E5-2600 v3 family; QPI up to 9.6GT/s ● Intel® C612 chipset ● Up to 512GB ECC DDR 4 2133MHz; 8x DIMM sockets ● 3 PCI-E 3.0 x8, 1 PCI-E 3.0 x4 (in x8), 1 PCI-E 3.0 x16, 1 PCI-E 2.0 x4 (in x8) ● Intel® i210 GbE LAN, 2 ports ● Integrated IPMI 2.0 and KVM with Dedicated LAN 7. 10x SATA3 (6Gbps); RAID 0, 1, 5, 10 8. 4x USB 3.0 (2 rear, 2 via header) 5x USB 2.0 (2 rear, 2 via header, 1 Type A)
2	Cooler	Supermicro X9/10 Cooler 1U passive Square
2	Processor	Intel® Xeon® E5-2630v4 2,2 10/20 2133 avec

		• 2,20GHz • 8,0GT • 25MB Cache • 10 Cores / 20Threads • DDR4 Memory Speed: 2133 • Intel Turbo Boost Technology: Ja • Hyperthreading: Ja • Socket 2011-3 • TDP: 85W
2	RAM	8GB DDR4 FSB2400 288-pin REG x4 1R (Micron 8GB DDR4 registered ECC) avec • registered ECC • FSB: 2400MHz • Latenz CL17 • Organisation x4 • 1 Rank • 288-pin • 1,2V
1	Drive	120GB Samsung SM863 MX MLC 2,5" SATA3
1	Power unit	400W Green power unit for 1U

In addition to this server, the configuration requires the SkyRadar CloudServer.

3. License

SkyRadar provides a system to teach, research and experiment on Airport Security and Radar Technology. By using SkyRadar's software (defined below), the Customer agrees to comply with and to be legally bound by these terms and conditions. These Terms govern the ownership and the use of the SkyRadar system, the SkyRadar proprietary software and content (defined below), third party software (defined below) as well as all Customer software (defined below), and constitute a binding legal agreement between the Customer and SkyRadar.

Definitions

SkyRadar stands for the SkyRadar Consortium, legally represented in this project by The SkyRadar Consortium, M - Engineering UG, Am Schmachtenberg 11, 58636 Iserlohn, Germany.

SkyRadar System is the entirety of hardware, software and content provided by SkyRadar.

SkyRadar Proprietary Software embraces all code that SkyRadar provides with the system at time of installation or through updates, excluding any third party software, services, APIs or content. It explicitly includes the configuration of third party software.

SkyRadar Content embraces all educational material as well as technical documents and guidelines, provided by SkyRadar.

Third Party Software and Content embraces all code and content provided with the system at time of installation or through updates, which is of third party origin (e.g. operating system, dlls).

SkyRadar Software Applications is SkyRadar Proprietary Software or Third Party Software deployed within the SkyRadar System and made accessible via a user interface. In those software applications, all code is non-accessible to the end user, apart from the code delivered to the browsers of the client computers.

Customer Software embraces all code produced by the Customer that interacts with the externalized standard interfaces, provided by SkyRadar.

Eligibility

The SkyRadar system is intended solely for the use of education, experimentation, research and data acquisition. Any access to or use of the system, software or content in an operational context, may it be air traffic control or military purposes, is prohibited.

Ownership

The Customer purchases the SkyRadar system in the configuration as specified in the corresponding technical offer. The SkyRadar system is protected by copyright, trademark, and other laws of Germany. The Customer acknowledges and agrees that all associated intellectual property to the SkyRadar system and related software or documents is the exclusive property of SkyRadar and its third party providers. The Customer will not remove, alter or obscure any

copyright or other proprietary rights notices incorporated in or accompanying the SkyRadar system, SkyRadar Proprietary Software and Content, or Third Party Software and Content.

Usage of SkyRadar Proprietary Software

According to the Customer's compliance with the terms and conditions of these Terms, SkyRadar grants the Customer a limited, non-exclusive, non-transferable right and license to use the SkyRadar proprietary software and content described above solely in the manner and for the purpose described in these Terms. The Customer purchases the right and license to use the provided software. Therein, neither the time of use nor the number of concurrent users is limited. The latter, however, is limited by the system's technical capacity of handling concurrent users and concurrently instantiated applications.

The Customer shall not make any modification to the SkyRadar proprietary software without written permission by SkyRadar.

The Customer may copy any of the provided proprietary software and content for backup purposes only and for the exclusive use of the Customer. Copies produced to be handed out to third parties are explicitly not permitted.

The Customer must not sell or sublicense the proprietary software and content without written permission of SkyRadar. He may however sell the SkyRadar System in its entirety. He is also entitled to apply the SkyRadar System including its software and content in the context of commercial services or consulting. In particular, he has the right to train third parties and to use the equipment for industrial research projects.

For the purpose of training or education, the Customer may provide students and non-subscribed external users with access to the Software Applications or parts thereof via internal networks or via the Internet.

The Customer is entitled to use the proprietary software to operate at own risk third party components or software, when using the provided standard interfaces.

The Customer owns all data produced with the software.

The Customer is solely responsible for compliance with any and all laws, rules, regulations, and other obligations that may apply when using the SkyRadar system. SkyRadar explicitly points to the restrictions concerning the emitting of secondary surveillance frequencies (in particular carrier frequency 1030/1090 MHz).

When using screen-prints, generated with SkyRadar Software Applications, the Customer shall include the following legend in all media: "www.SkyRadar.com"

Terms and Conditions for Third Party Software

SkyRadar respects copyright law and does not claim any ownership rights over Third Party Software. SkyRadar expects its Customers to do the same. For all third party software (e.g. operating system), the terms and conditions account as communicated by the license owner.

Terms and Conditions for Customer Software

The Customer owns all rights for Customer software. The Customer acknowledges and agrees that he is solely responsible for Customer software, in particular for any damage caused to the system by Customer Software.

Indemnification

The Customer agrees that SkyRadar, its subsidiaries, officers and employees, will not be held responsible for any third party claim, demand, or damage, including reasonable attorneys' fees, arising out of the Customer's use of the system.

Salvatory Clause

In case that a specific clause in the contract is invalid the validity of the remaining clauses is not affected. The Customer and the SkyRadar will work together to replace inapplicable paragraphs s as far as possible.

Controlling Law and Jurisdiction

These Terms will be interpreted in accordance with the laws of the Federal Republic of Germany.