

SVOS

MARS  
MULTI-ROLE ARMORED SYSTEM

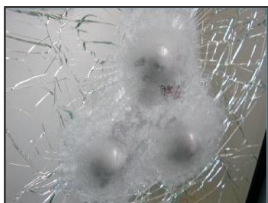


Multipurpose Military Vehicle Family

- Established 1992
- All shops located at Přelouč in the Czech Republic
- Focused on full-scope development, production and support of
- Wide customers base with more than 100 operators worldwide
- Armoured cars fielded in more than 60 countries
- In-house capabilities in:
  - Design and development
  - Production (various armouring including glass), testing & assembly
  - Service support (maintenance deployment teams)
- Combat proven platforms
- Certified to NATO
- ISO 9001:2009 & AQAP 2110 certified



Five main production lines allowing easy cross-segment technology sharing:



- **Military & Police Armoured Vehicles**
  - Own production cars (Vega 4x4, Vega 6x6 ; MARS 4x4, MARS 6x6)
  - Heavily modified cars (Land Rover, Toyota)
  - On-demand Modifications
- **Subassemblies for Vehicles OEM**
  - Armouring subassemblies
  - Cooperation with OEMS such Volvo, Mercedes, Renault, Tatra ...
- **Protected Buildings**
  - Military camp
  - Command post
  - Watchtower
- **Protective Materials**
  - Bullet-resistant glazing
  - Multi-layer armour steel
  - Composite armour material
- **Civil Armoured Vehicles**
  - Cross-Country Vehicles
  - Limousines
  - Trucks & Buses



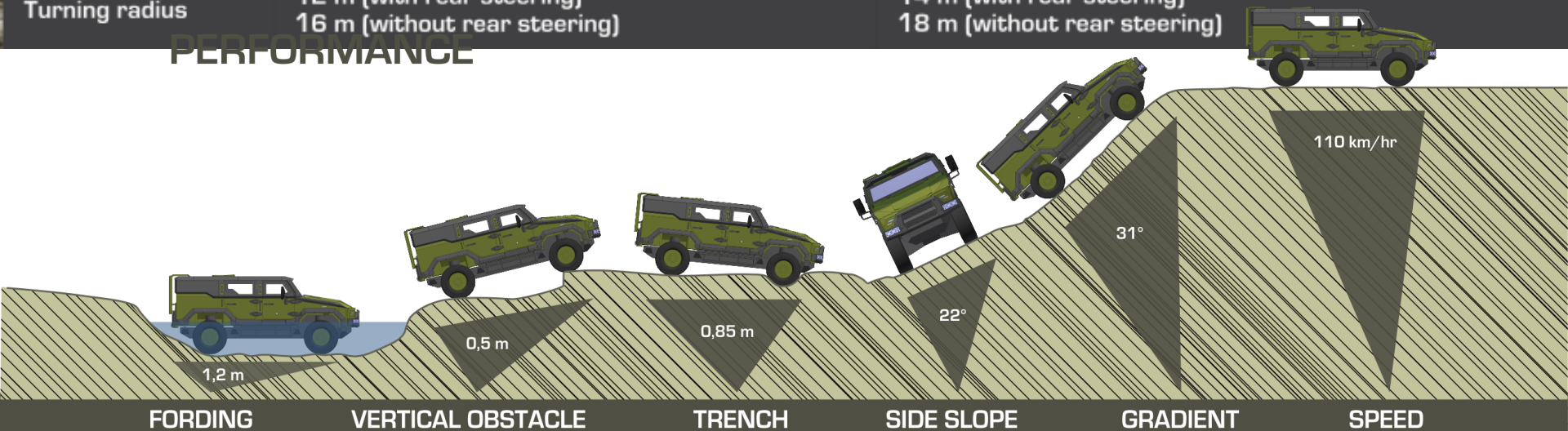
„Any mission capable..“

- Developed fully as a private venture of SVOS
- Designed as per NATO Std. requirements with utilisation of Czech Armed Forces knowledge
- Basic design characteristics:
  - **Modular concept of the body** (open top, hard top, special missions...)
  - **Modular concept of the chassis** (4x4 and 6x6 variants)
  - **Modular concept of vehicle purpose** (transport, defence, strike, C4I, MPRC...)
  - **Scalable protection level** as per STANAG 4569
  - **Full interoperability within NATO environment**
  - **Wide customization options** (C4I/C4ISR systems, Weapons)
  - **Excellent off-road and urban mobility** (high angles, steerable rear axle)
  - **Predictive and easy-to-make maintenance**
  - **All key aggregates from NSN enlisted & certified parts**
- All armouring and body parts developed by SVOS
  - Sandwich Armour Concept and Materials designed and produced in-house
  - Transparent Armour designed and produced in-house

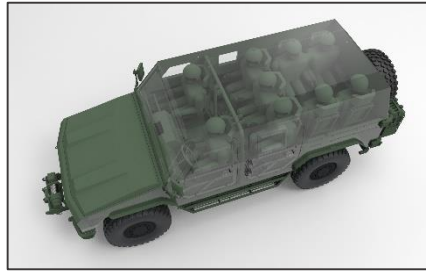


	MARS 4x4	MARS 6x6
Crew	Maximum 2+10 members (according to selected version)	Maximum 2+12 members (according to selected version)
Engine	Six-cylinder, in-line water-cooled overcharged compression-ignition engine, power of 240 kW at 2.200 rpm, torque of 1.300 Nt at 1.600 rpm	
Transmission	Automatic 6 forward and 1 reverse gear, permanent 4x4, with differential locks	
Axles and steering	Front and rear axles with hydraulic booster, suspension and independent half axles with adjustable height (Ground clearance 245 – 472 mm)	
Braking system	Dual-circuit air to the service brakes with ABS and automatic load management	
Tires	CTIS size 395/85, 2-pieces wheel with beadlock and optional runflat, optional tires 365/80 R20	
Weight	GVW 14.000 kg Payload 2.000 kg	GVW 19.500 kg Payload 4.500 kg
Turning radius	12 m (with rear steering) 16 m (without rear steering)	14 m (with rear steering) 18 m (without rear steering)

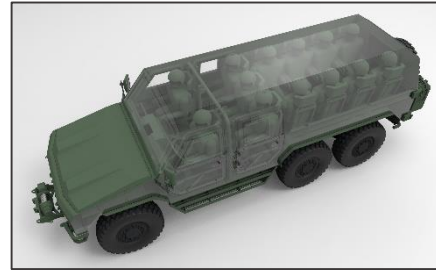
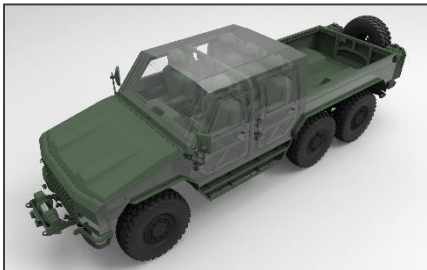
## PERFORMANCE



- With 4x4 and 6x6 concept the vehicle can be used for wide array of missions
- The basic **4x4 troops carrier** variant
  - Gross vehicle weight up to 14 000 kg
  - Payload up to 2 000 kg
  - Body can accomodate 2+3, 2+2+4, 2+3+4 or up to 2+8 troops



- The basic **6x6 troops carrier** variant
  - Gross vehicle weight up to 19 500 kg
  - Payload up to 4 500 kg
  - Body can accomodate 2+3, 2+2+8, 2+3+8 or up to 2+10 troops



## Multi-purpose



- Open-Top or Hard-Top for wide variety of missions
- High level of Vehicle protection up to STANAG 4569 Level 3
- Easy access for quick troops embarkment
- Wide variability of weapons installation

## Air defence



- Unlimited azimuth move for the AAGMs and guidance sensors
- High vehicle electrical output powering the system
- Excellent manoeuvrability in terrain
- Space for AAGM system operator and guidance system

## Command



- Perfect platform for C4ISR system installation
- Designed for C4ISR and border patrolling missions
- Excellent built-in dimensions for the special equipment
- High vehicle electrical output powering the system

## MRAP for RCP



- Arm for special operations such as RCP
- High hydraulics output
- Equipment for IED detection and disposal
- Rear ramp for IED detection robot operation



Ambulance



- High level of ballistic protection
- Large cargo area with easy access
- Wide variability of interior arrangement
- Option for installation of special military equipment

Multipurpose



- Ballistic protection exceeding paramilitary standards
- Easy access for quick troops embarkment
- Excellent urban manoeuvrability
- Wide variability of police features installation

Anti-riot



- Water cannon integration
- Fire protection system
- Modular shields with adjustable width
- Camera surveillance system

SWAT



- Bridge with adjustable height
- High carrying capability
- High level of ballistic protection
- Excellent urban manoeuvrability

- Modular body concept with wide options for cabin arrangement
- Bulky space for internal movements and arrangement
- Wide options for cargo carriage
- Regardless of the variant still heavy protection levels as per STANAG 4569
- Excellent manoeuvrability and heavy terrain driving capabilities
- Wide temperature and weather resistance
- Embedded driving assistance capabilities
- Provisions for installation of special equipment
- C4I & BMS equipment on board
- NVG compatibility for hidden night operations
- Low licensing restrictions for export



- Bulky cabin for wounded persons & medical attendants
- Variable ballistic protection of the vehicle
- Up to 4 stretchers or 6 sitting patients or combination
- Easy access with a rear door for stretchers loading/unloading
- Sealed cabin with NBC protection and filtered air
- Stretchers system compatible to STANAG 2040 for easy compatibility
- Medical oxygen distribution system
- Integral lightning system for easy illumination of medical activities
- Embedded medical instruments (AED, oxygen pump, functions monitor, suction device...)
- Stowage hatches for medical equipment and instruments
- Full certification for operation in regular traffic environment



- Designed for detection, interrogation, transport and extraction of mines and IEDs
- Variable ballistic protection of the vehicle
- Bulky cabin for pyro squad and special equipment
- Roof mounted remotely operated turret with ISR and weapon
- Wide options for special equipment such as:
  - Obstacle Blade
  - Self Protection Adaptive Roller Kit
  - Surface Clearance Device
  - Ground Radar
  - Mine Plough
- Defence suite (SLAT against RPGs, jammer against RC IED...)



- Designed for battle operations management directly in the operation area
- Variable ballistic protection of the vehicle
- Bulky cabin for systems operators/commander and special equipment
- Roof mounted remotely operated turret with ISR system
- Integrated approach allowing systems communication
- C4ISR system tailored to the operator's standards
- High electrical output for systems powering
- Variable configuration of the vehicle depending on the mission
- 4x4 to 6x6 undercarriage for wide payload and carrying capacity options
- Option for UAV and special systems installation
- Secondary role in law enforcement requiring and emergency situations



- High vehicle payload for the anti-aircraft system installation including:
  - Detection radar system
  - Missile guidance system
  - Missile launcher
  - Additional missiles in transport storage
  - Fire control management system
- High electric output for the system powering
- Variable ballistic protection of the vehicle
- Excellent terrain driving capabilities exceeding other SPAAG vehicles
- Suitable for active interception or area/object defence
- Due to high mobility suitable for protection against manned&unmanned aerial targets



- Wide customisation options for military use:
  - **Remote Control Weapon System** or **Revolving Roof Turret** for
    - various guns of 7,62 to 30 mm calibre & grenade launchers of 40 mm calibre
  - **Non-lethal flash blinding lights**
    - Ultra-high intensity flash light for discrete threat elimination/sniper fire protection
  - **Protection and defence suite**
    - Laser warning system & Acoustic gunshot localisation
    - Smoke grenades launchers (optical and IR „curtain“ system)
    - Radio Controlled IED jammer
    - NBC detection set
  - **ISR equipment**
    - FLIR turret on a telescopic mast with:
      - IR camera/CCD Daylight camera & laser rangefinder and designator



- Wide implementation of state-of-the-art defence and protection concept includes:
  - **Heavy Fire Power** with modular weapons mounts
  - Chassis and hull **shape optimized for IED/Blast** protection
  - **Blast protected seats**, restraints and stowage
  - **Sandwich & Transparent armouring** designed and produced on-purpose in-house
  - **Ballistic shadowing of key elements**
  - All materials are **non-flammable and fire retardant** with **fire suppression system**
  - **High mobility** even off the road for easy escape
  - **Low position of Centre of gravity**
  - **Steerable rear axle** for urban mobility
  - **High engine shaft output and torque** for rapid acceleration
  - **Central Tire Inflation System & Air suspension** configurable on the move
  - **High situational awareness** (Battle Management System)
  - **NBC filtering system and air conditioning**
  - Wide option of **electronic defence suite items** (RCIED jammer, LWS...)

Ballistic protection	
7,62 mm x 39 API BZ	LEVEL 2
5,56 mm x 45 NATO M 193	STANAG 4569
7,62 mm x 51 NATO Ball	
5,56 mm x 45 NATO SS 109	



Blast protection against grenades, mines and explosives	
Blast AT Mine (6 kg)	LEVEL 2 a, b
Unexploding artillery fragmenting submunitions	STANAG 4569
Hand grenades	

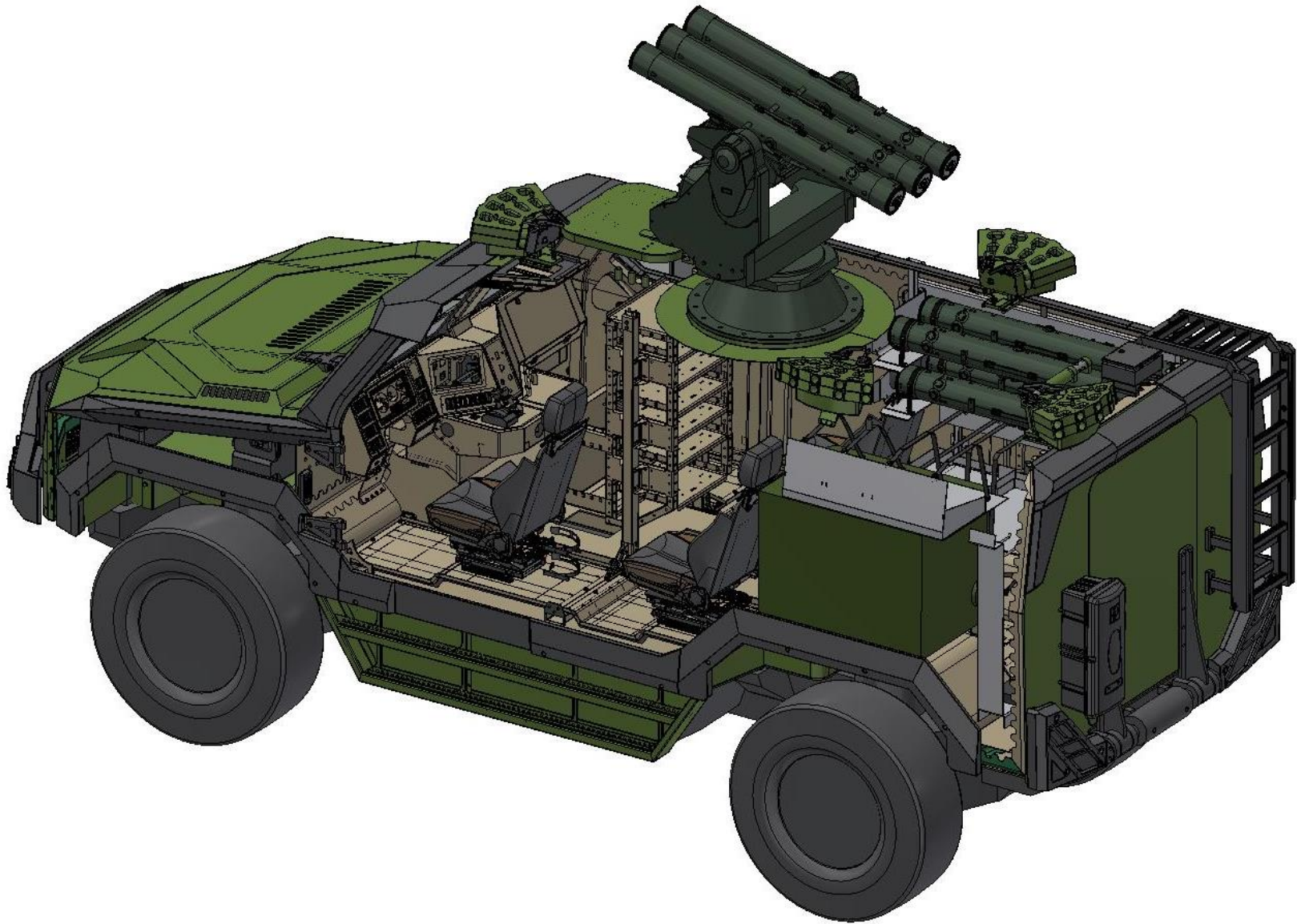




# MSHORAD















MARS with MFU



MARS with MRU



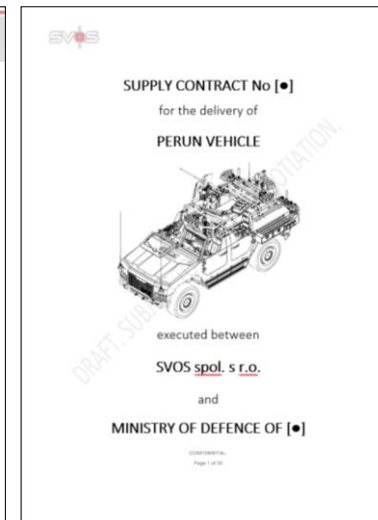
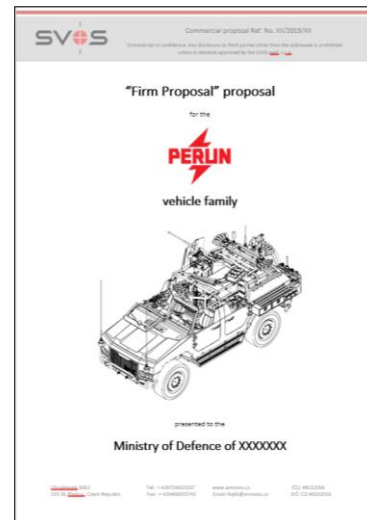
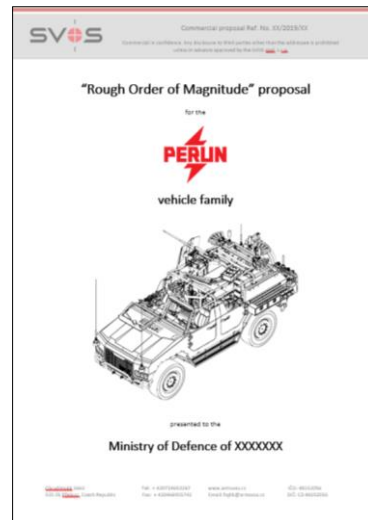




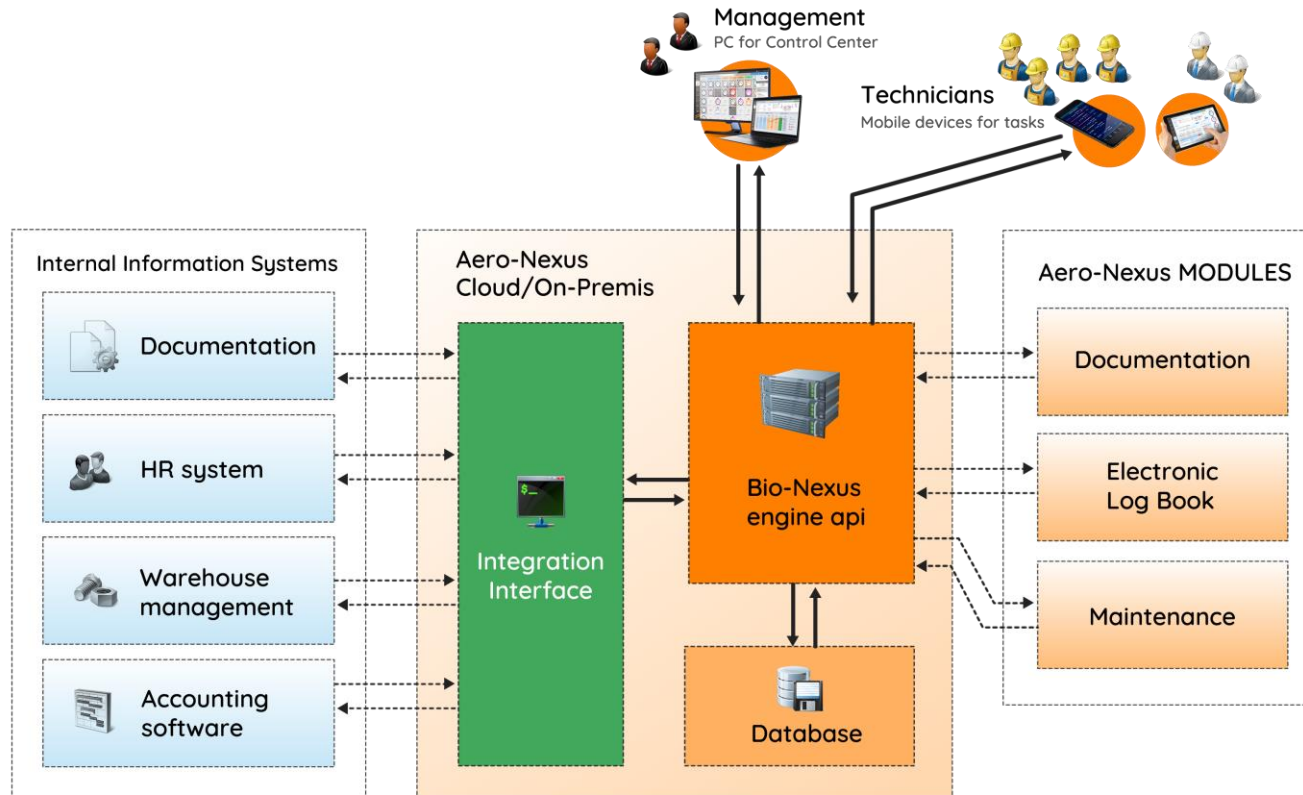
- SVOS provides innovative training concept utilizing:
  - **VR training aids and maintenance aids** (available for mission deployment)
    - VR view of maintenance tasks
    - Complex guideline of the maintenance process
    - Visualisation of tooling, movements, forces...
  - **Reconfigurable virtual simulator** for driver/gunner
    - Easy vehicle operation and basic tactical procedures
  - **Full motion driving simulator**
    - Regular operations practicing (terrain, conditions...)
    - Non-standard operations practicing (malfunctions, damages...)
    - Battle theatre familiarization prior deployment
    - Urban mobility with neutral/hostile elements (CGF)
  - **Interconnection** between all training aids for environment testing
  - **Tactical training capability** with briefing, command & debriefing capability



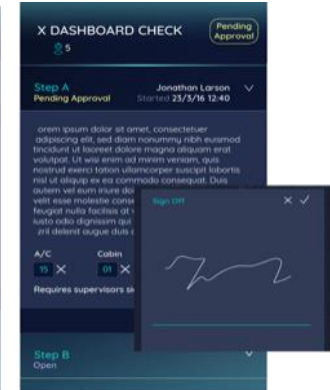
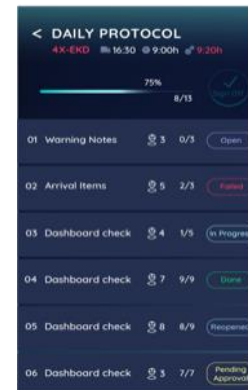
- Maintenance & support concept works via dedicated Contracting vehicle
  - Framework agreement for life cycle of the vehicle fleet
  - Covering:
    - Defined budget limit (customer's right but no obligation to utilize it)
    - General licensing (third party content)
    - System of ordering (approved persons, scheme of approvals...)
    - Scope of services (services, parts, training, support, repairs, equipment..)
    - Fixed pricing for dedicated items with set escalation (CPI-W Index)
    - Terms and conditions (place, price, time...) for deliveries
    - OEM readiness rates (critical stock, typical repair times...)



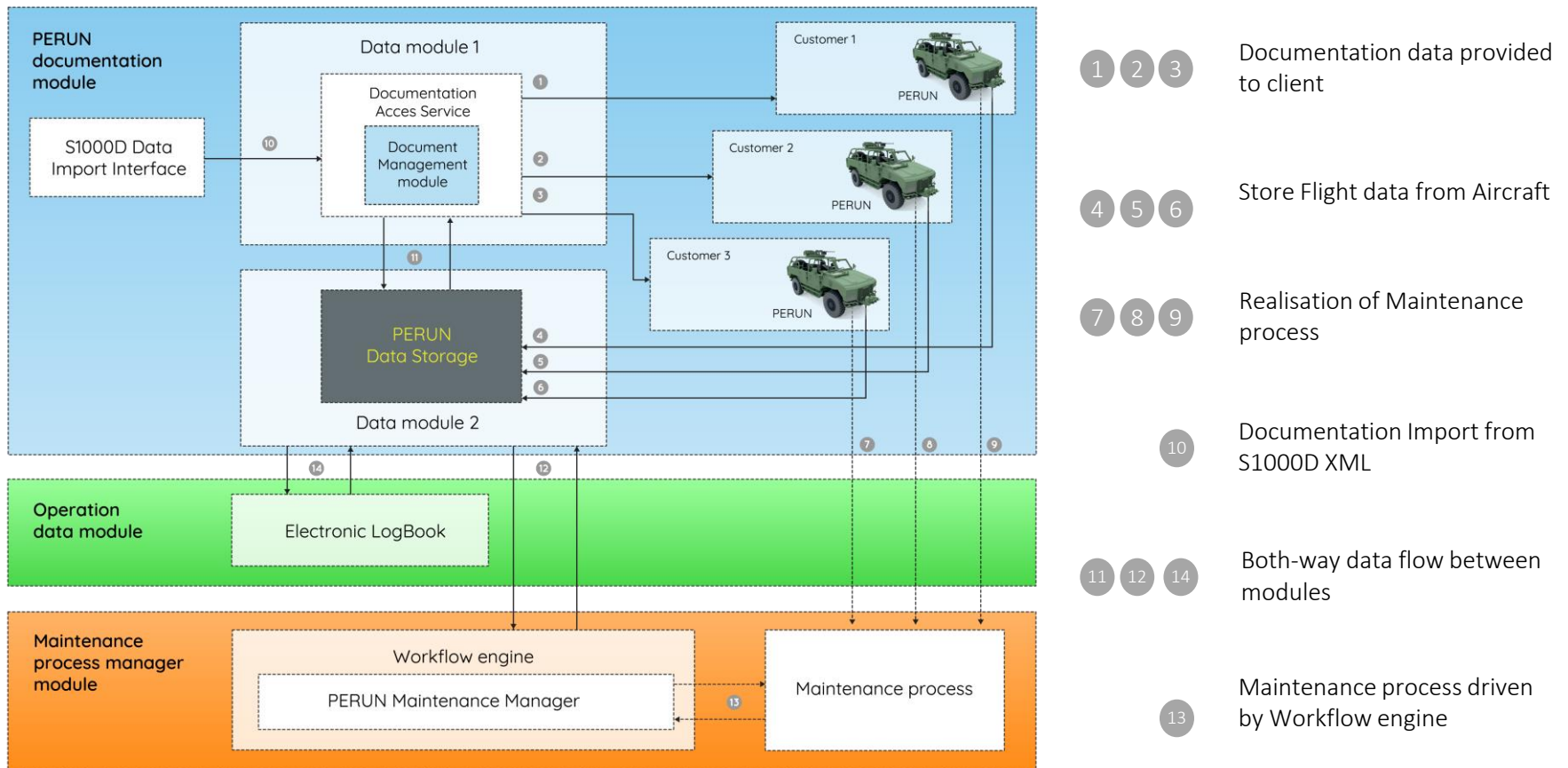
- The system allows management of following subsystems:
  - Maintenance management, planning and predictions
  - Parts, items and consumables warehouse and rotation pool management
  - Personnel qualification and capacity management
  - Accounting output (parts ordering, contracting...)



- SVOS provides innovative digital and cloud-based Maintenance Management Tool with:
  - On-line access to updated documentation (operational, maintenance, job cards...)
  - Documentation changes tracking & personnel up-to-date qualification verification
  - On-line access to OEM remote support
  - On-line access to the warehouse with on-line parts ordering system
  - Pre-scheduled maintenance task list with modification based on vehicle status
  - Maintenance planning interface for the whole vehicle fleet
  - Electronic confirmation of performed maintenance tasks
  - Full monitoring & statistic/full debriefing of maintenance activities
  - Debriefing options (learning curves, maintenance effectiveness)



- The MARS Maintenance Data flow utilises latest state-of-the-art technology for the data distribution. It includes cloud technology for real-time data distribution.
- Any user has its own „data flow“ stream for security reasons.
- Classification of the „data system“ depending on user’s legal limitations.



- MODULAR CONCEPT OF CHASSIS (4x4 a 6x6)
- MODULAR CONCEPT OF BODY (open top, hard top, variety of system integration)
- IN-DRIVE **ADJUSTABLE CLEARANCE** OF THE CHASSIS from 240 to 450 mm
- **LOW VIBRATIONS** FOR SENSITIVE ELECTRONICS / CREW COMFORT
- **LEVELLING** OF THE VEHICLE **ON UNEVEN SURFACE** WITH INDIVIDUAL ADJUSTED WHEEL *POSITION*
- ***ALL KEY DRIVETRAIN COMPONENTS COMBAT-PROVEN & FROM NSN-CODED PARTS***
- ***HIGH STIFFNESS OF THE VEHICLE BODY (CLOSE TO ABSOLUTE STIFFNESS WITH MIN 30 HZ GUARANTEED)***
- ***SHORT TURN RATE***
- ***“SINGLE HULL” ARMoured BODY***
- ***EASY RELOADING OF ROOF-MOUNTED MISSILE SYSTEMS BY REAR RAMP***
- ***AIR TRANSPORTABILITY (C-130)***



# Thank you for your attention!

**Dipl. Ing. Stepan Cerny**  
Business Director

Email: [cernys@armsvos.cz](mailto:cernys@armsvos.cz)  
Cell: + 420 724 321 220  
Tel.: +420 466 955 743  
Fax: +420 466 955 742  
Web: [www.armsvos.cz](http://www.armsvos.cz)

**SVOS spol. s r.o.**  
Chrudimská 1663  
53501 Přelouč  
Czech Republic