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## 4. Members of the consortium

### 4.1 Participants (applicants)

#### 4.1.1 SIListra Systems GmbH (SIL)


SIListra Systems GmbH							
http://silistra-systems.com/							
<b>Short name</b>	SIL	<b>Type</b>	SME	<b>Country</b>	D	<b>Partner no.</b>	1
<b>General description of the organisation</b>							
<p><b>SIListra Systems GmbH (SIL)</b> is an IT company (SME) focusing on functional safety and security. Its core competence is the simulation and detection of hardware execution errors which could harm both safety and security of a given (embedded) system. Across several industry sectors, SIListra Systems is well-known for being experts in Software-based Failure Injection and, especially, Software Coded Processing – a software technique allowing to fulfill highest requirements of industry standards for functional safety and requirements for security. SIListra Systems GmbH was founded in 2012 as a spin-off from the Technical University of Dresden.</p>							
<b>Name and Description of the Department(s) contributing to the execution of the Project</b>							
Research and Development Department							
<b>Main attributed tasks and role in the project</b>							
<p>SIL will provide the following contributions in the context of the SCP project: SIL will coordinate the project and hence, lead WP1 (<b>Project management</b>), WP2 (<b>System blue-print</b>), and WP3 (<b>System delivery</b>). It will contribute to tasks in all WPs.</p>							
<b>Relevant skills and previous experiences</b>							
<p>SIListra Systems GmbH has strong skills in building software systems. These skills are required in lifting the SCP platform to TRL7. Moreover, SIListra Systems GmbH will be hiring multiple persons that are currently working for TU Dresden. They have agreed to work - at least part-time - for SIL to execute the SCP project:</p> <ol style="list-style-type: none"> <li>1) Prof. Dr. Christof Fetzer coordinates two H2020 EU projects (SERECA and SecureCloud). Both projects focus on the development of software to support SGX. SCP will facilitate the commercialization of the contributions by TU Dresden to these projects. Prof. Fetzer has published multiple SGX-related papers. He will take the role of the technical coordinator of this project.</li> <li>2) Dr. Andre Martin has been member of the H2020 SecureCloud project and collected hands on experience with SGX and has strong system building skills.</li> <li>3) Dr. Irina Karadschow has strong experiences in managing projects and will help to manage SCP.</li> </ol>							


SIListra Systems GmbH							
http://silistra-systems.com/							
Short name	SIL	Type	SME	Country	D	Partner no.	1
Profile description of key personnel carrying out the work							
<p><b>Dr. Martin Süßkraut</b> (m) is co-founder and Head of Research and Development of the SIListra Systems GmbH. Before that he worked as project manager and researcher at Technische Universität Dresden. He received his degree as Dr.-Ing. in 2010 from the same university. His research interests focus on software implemented fault tolerance and source code quality. He also worked as software developer for IBM and Siemens.</p> <p><b>Prof. Dr. Christof Fetzer</b> (m) (consultant) has received his diploma in Computer Science from the University of Kaiserslautern, Germany (Dec. 1992, GPA 100%) and his Ph.D. from UC San Diego (March 1997, GPA 100%). He then joined AT&amp;T Labs-Research in August 1999 and had been a principal member of technical staff until March 2004. Since April 2004 he heads the endowed chair (Heinz-Nixdorf endowment) in Systems Engineering in the Computer Science Department at TU Dresden. He is the chair of the Distributed Systems Engineering International Masters Program at the Computer Science Department. Prof. Dr. Fetzer has published over 150 research papers in the field of dependable distributed systems, has won five best paper / best student paper awards (DEBS2013, LISA2013, CLOUD2014, SRDS2014, DSN2015) in recent years. He has published about SGX in OSDI2016 and two papers in Middleware2016. Two further papers related to SGX have just been submitted to EuroSys2017.</p> <p><b>Dr. André Martin</b> (M) (consultant) graduated with a Diploma (2008) and a PhD in Computer Science (2015). In his doctoral thesis, he explored novel mechanisms for low overhead fault tolerance in data streaming systems. He has been selected twice as a DEBS challenge finalist in 2014 and 2015 and won the UCC Cloud Challenge award in 2014. His expertise includes in cloud computing, distributed systems, elasticity and fault tolerance in large scale data processing systems. He has published about SGX in OSDI2016.</p> <p><b>Dr.-Ing. Irina Karadschow</b> (F) (consultant) is a project coordinator/ manager. Dr. Karadschow has extensive experiences in managing and coordinating EU, BMBF, DFG, AiF and BMWi- funded research projects. She has received her Magister degree (2002- Industrial Management) at the Technical University Sofia, her Diploma degree (2005- Business Administration and Management) and her Doctor title (2015 Mechanical Engineering) at the Technical University Dresden.</p>							
Publications, other research or innovation products, or patents related to the project							
No.	Title of Publication or Name and Short Description of the Product/Service						Relevance for the Project
1	Sergei Arnautov, Bohdan Trach, Franz Gregor, Thomas Knauth, André Martin, Christian Priebe, Joshua Lind, Divya Muthukumaran, Daniel O'Keeffe, Mark L Stillwell, David Goltzsche, Dave Eysers, Rüdiger Kapitza, Peter Pietzuch, Christof Fetzer, „SCONE: Secure Linux Containers with Intel SGX”, Usenix OSDI, 2016.						Describes the secure container approach.

SIListra Systems GmbH							
http://silistra-systems.com/							
Short name	SIL	Type	SME	Country	D	Partner no.	1
2	Dmitrii Kuvaiskii, Oleksii , Sergei , Bohdan Trach, Pramod , Pascal Felber, Christof Fetzer, “SGXBounds: Memory Safety for Shielded Execution”, submitted					Describes how to ensure memory safety to protect programs against attacks.	
3	Stefan Brenner (TU Braunschweig), Colin Wulf (TU Braunschweig), Matthias Lorenz (TU Braunschweig), Nico Weichbrodt (TU Braunschweig), David Goltzsche (TU Braunschweig), Christof Fetzer (TU Dresden), Peter Pietzuch (Imperial College London), Rüdiger Kapitza (TU Braunschweig), „SecureKeeper: Confidential ZooKeeper using Intel SGX“, Middleware 2016					Describes our experience with SGX.	
4	Rafael Pires (University of Neuchatel), Marcelo Pasin (University of Neuchatel), Pascal Felber (University of Neuchatel), Christof Fetzer (TU Dresden), “Secure Content-Based Routing Using Intel Software Guard Extensions”, Middleware 2016.					Describes our experience with SGX.	


<b>Relevant previous projects/activities</b>
SIListra Systems is a project partner of the BMFT FAST project ( <a href="http://de.fast-zwanzig20.de/">http://de.fast-zwanzig20.de/</a> ). It participates in the sub-project FastCloud ( <a href="http://de.fast-zwanzig20.de/konnektivitaet/fast-cloud/">http://de.fast-zwanzig20.de/konnektivitaet/fast-cloud/</a> ). Within FastCloud, SIListra focuses on secure and resilient cloud computing. The approach investigated within FastCloud is complementary to the approach investigated in SCP.
<b>Relevant available infrastructure / equipment description</b>
The development will be performed using cloud resources.

#### 4.1.2 Sync Lab S.r.l. (SYNC)


<b>SYNC LAB SRL</b>							
http://www.synclab.it/							
<b>Short name</b>	SYNC	<b>Type</b>	SME	<b>Country</b>	IT	<b>Partner no.</b>	2
<b>General description of the organisation</b>							
<p><b>Sync Lab</b> (<a href="http://www.synclab.it/">http://www.synclab.it/</a>) is an Italian SME active in the ICT field with focus on software and service development and integration. It was established in Naples in 2006, South of Italy, and has currently four branches in four of the major Italian cities, namely: Naples, Rome, Milan, and Padua.</p> <p>Since its inception, Sync Lab has made massive investments in R&amp;D activities. Sync Lab R&amp;D division has been involved in major research projects, funded by the European Commission or by national Ministries and/or local governments. Sync Lab has consolidated partnerships—both at the business and at the research level—with leading companies in technology fields that are central to the project, and in particular: security monitoring, Business Activity Monitoring (BAM), cloud computing, Complex Event Processing, IP video surveillance, Geographic Information Systems (GIS), and banking.</p>							
<b>Main attributed tasks and role in the project</b>							
<p>Sync Lab will redesign and reimplement one its key products, namely Streamlog (<a href="http://www.synclab.it/prodotti/streamlog/">www.synclab.it/prodotti/streamlog/</a>), to enable the security critical parts of the application to benefit from the superior security guarantees that will be provided by the secure container technology developed by the project. Streamlog is an activity monitor, based on log analysis, specifically designed for logging and tracing the activities of system administrators. The system was designed as a solution to comply with the November 2008 Italian regulation on Data Protection, which mandates that abuses by System Administrators be detected, notified to the data owners, and prosecuted in court. Streamlog has challenging security requirements, which can only be satisfied to a limited extent using currently available technologies. The new version of Streamlog that will be developed in the project will resist to attacks by powerful users, including the system administrator. In order to achieve this goal, SYNC will:</p> <ol style="list-style-type: none"> <li>1) redesign and partition the application in such a way that security critical parts be encapsulated in a secure container;</li> <li>2) extend and enhance the data collection support;</li> <li>3) improve event storage support.</li> </ol>							
<b>Relevant skills and previous experiences</b>							
<p>Sync Lab has a long time experience in the development and deployment of integrated security solutions, especially in the field of log analysis, data correlation for anomaly detection, and big data analytics for banking. Sync Lab has made significant investments to improve their skills in the field of cloud computing and big data. It has recently become Silver Partner of Citrix, a major player in the field of virtualization and cloud computing.</p> <p>Sync Lab has been participating to several EU and national research projects. In particular, it is one of the partners of the LEANBIGDATA project (<a href="http://leanbigdata.eu">leanbigdata.eu</a>), funded by the EC within the context of FP7, which aims at building an ultra-scalable and ultra-efficient integrated big data platform addressing important open issues in big data analytics. Also importantly, it was one of the partners of the NAVRURAL project that was approved within the context of the EC Eurostars-Eureka funding program with the objective of developing a GPS navigator for cyclists.</p>							
<b>Profile description of key personnel carrying out the work</b>							

SYNC LAB SRL							
http://www.synclab.it/							
Short name	SYNC	Type	SME	Country	IT	Partner no.	2
<p><b>Salvatore Belfiore</b> (M) Sync Lab CEO, founded the company in 2002. Under his guidance Sync Lab has grown to its current four branches structure and has acquired customers of primary importance in the Italian and international scene.</p> <p><b>Ferdinando Campanile</b> (M) is the general manager of Sync Lab and the leader of its R&amp;D department. He has lead Sync Lab in European as well as national research project, funded by the EC or Italian Ministries. He holds a Master degree in Electronic Engineering and has co-authored several scientific papers on topics that are closely related to activity monitoring in IT systems.</p> <p><b>Luca Lo Presti</b> (M) is the technical leader of Sync Lab “Applications” division. He also leads the development and commercialization of Streamlog product line.</p> <p>The company has strong relationships with Italian universities and research centres, particularly with the University of Naples “Parthenope”, with which it has a continued fruitful cooperation. <b>Prof. Luigi Romano</b> (M), <b>Luigi Coppolino</b> (M), and <b>Salvatore D’Antonio</b> (M) from the University of Naples “Parthenope”, who have a valuable experience in FP7 and H2020 EC funded projects on topics that are key to the SCP project, will support Sync Lab as consultants.</p>							
Publications, other research or innovation products, or patents related to the project							
<p><b>StreamCrusher</b> is a solution able to collect, index, and interpret the large amounts of data that an organization data centre generates daily: custom application logs, system logs, alerts, clickstream data, data feeds, configuration data, changes to the file system, message queues, and many others. From these heterogeneous data, StreamCrusher extrapolates information that the IT management can use to discover new business opportunities (<a href="http://www.synclab.it/prodotti/streamcrusher/">www.synclab.it/prodotti/streamcrusher/</a>).</p> <p><b>WAVE</b> (wide area videosurveillance environment) is based on the milestone video surveillance suite (DVMS). Its main innovative aspect is the strict integration with GIS (geographical information system) that enables management of video surveillance systems for very large areas (<a href="http://www.synclab.it/prodotti/wave/">www.synclab.it/prodotti/wave/</a>).</p>							
Relevant previous projects/activities							
<p>Sync Lab has a long time experience in the development and deployment of integrated security solutions, especially in the field of log analysis, data correlation for anomaly detection, and big data analytics for banking. Sync Lab has made significant investments to improve their skills in the field of cloud computing and big data. It has recently become Silver Partner of Citrix, a major player in the field of virtualization and cloud computing.</p> <p>Sync Lab has been participating to several EU and national research projects. In particular, it is one of the partners of the <b>SecureCloud</b> project (<a href="https://www.securecloudproject.eu/">https://www.securecloudproject.eu/</a>) and of the <b>LEANBIGDATA</b> project (<a href="http://leanbigdata.eu">leanbigdata.eu</a>), funded by the EC within the context of H2020 and FP7, respectively. Also importantly, it was one of the partners of the NAVRURAL project that was approved within the context of the EC Eurostars-Eureka funding program.</p>							
Relevant available infrastructure / equipment description							
<p>The lab facilities of the four sites will be made available to project partners for development, demonstration, and validation activities.</p>							


### 4.1.3 EXUS Ltd (Exus)

EXUS Ltd							
<a href="http://www.exus.co.uk">http://www.exus.co.uk</a>							
Short name	EXUS	Type	SME	Country	EL	Partner no.	3
General description of the organisation							
<p>EXODUS S.A. (brand name EXUS) is a software house with offices in Athens, London and Bahrain, with strong background in delivering complex systems and solutions in various countries over the world. Our purpose is to improve the business of those we serve, simplifying complexity to enable intelligent action. EXUS' main expertise exists with developing cutting edge software products and solutions for the Finance, Banking and Telecom Sectors. Furthermore, EXUS Web and Mobile Solutions, enable large organizations to leverage the ever-increasing penetration of smart-phones and the Mobile Web. EXUS' work serves demanding and critical business applications and domains, covering all types of diverse sectors. Ranging from consumer banking applications, smartphones-based payment and transaction systems, augmented-reality mobile applications, large-scale and complex portals, extranets, Electronic Data Interchanges to secure cloud services, EXODUS covers a wide spread of activities by leveraging the expertise of its 130+ people strong technology units that are led by expert project managers and senior consultants.</p> <p>EXUS has a strong portfolio of major customers in sectors such as Banking, Telecoms, Utilities, Business Consultants, Media, Real Estate and Hospitality. Our solutions cover a very wide range of demanding Web and Mobile applications, including transaction heavy intranets and extranets, e-learn and e-payment, as well as customized applications pertaining to enterprise needs. In the past four years, we have expanded our scope to incorporate Mobile Applications in smart phones and tablets, covering the iOS, Android and Windows Mobile platforms.</p> <p>EXUS has been awarded with the EFQM "Recognized for Excellence" award and over the years EXUS has been included among the 20 best places to work in Greece (within the "Great Places to Work®" annual competition). EXUS is certified with ISO:9001 for quality assurance. Our research consultants are certified according to the Project Management Institute as Project Management Professionals and Scrum Masters and Scrum Product Owners. Finally, EXUS is a Gold Microsoft and Oracle Partner for development and Integration works.</p>							
Name and Description of the Department(s) contributing to the execution of the Project							
<p>The department assigned to this project is EXUS Innovation. EXUS operates its internal Innovation department which is responsible for a large number of research activities. EXUS Innovation manages a portfolio of initiatives that aim to pave the way for the introduction and take up of emerging technologies to the markets EXUS serves. Leveraging the results of strategic research activities allows us to harness untapped niches in our market sectors of interest, while it allows EXUS to investigate new market opportunities for innovative products and services. EXUS Innovation excels in driving progress in software engineering, big data management and analytics to foster advances in key sectors such as: finance, security, health, creativity and learning.</p> <p>EXUS Innovation brings together professionals of diverse research backgrounds, including embedded systems, telecommunications, algorithms, architecture, data management, machine learning, privacy &amp; security, user interfaces, and visualization.</p>							





EXUS Ltd							
<a href="http://www.exus.co.uk">http://www.exus.co.uk</a>							
Short name	EXUS	Type	SME	Country	EL	Partner no.	3
Main attributed tasks and role in the project							
<p>EXUS will port select modules of the LivingMarket banking product, which is an extension of EFS flagship product of the company. LivingMarket operates in a private cloud installation of EXUS and uses the Docker technology to isolate tenants, that is the SME customers using the market intelligence features of the product. The goal will be to benefit from the secure container technology which is developed by this project. LivingMarket markets a breakthrough anonymization approach, the first in the banking sector, and a set of data analytics methods and tools to derive accurate market and customer insights out of anonymized financial and demographic data. This product has strong security and privacy requirements, which derive from the banking and EU legislations. The updated version of LivingMarket will be developed within this project in order to improve the security against attacks.</p>							
Relevant skills and previous experiences							
<p>The LivingMarket project management and development team will be mobilized for the needs of this project, bringing all the necessary expertise to port selected modules of the product to the technologies developed by this project.</p>							
Profile description of key personnel carrying out the work							
<p><b>Dr. Leonidas Lymberopoulos (Mr)</b> is a Senior research consultant at EXUS. He graduated (top 1% in his class, GPA 93.2%) from the school of Electrical and Computer Engineering of National Technical University of Athens (NTUA) in 2000 and received his PhD (fully funded by Cisco systems and EPSRC) in 2004 from the Dept. of Computing, Imperial College London. He then worked as a Research Fellow at the Dept. of Computer Science, UCL (2004-2006) and as Senior Researcher at the School of Electrical and Computer Engineering, NTUA, prior to joining EXUS S.A. He has participated in several RTD projects (EPSRC PolyNet, Cisco-funded Polyander/Primary Investigator, EC FP6 IP RUNES, EC FP6 STREP ArguGRID, EC FP7 FEDERICA, EC STREP FP7 NOVI, EC FP7 STREP NEPHRON+, EC FP7 SWAN-iCare). His research expertise is in the area of data analytics for healthcare and financial systems. He is the technical coordinator of the data analytics platform (collection analytics, fraud detection and credit risk management) which is part of EXUS's commercial Financial Suite. He coordinated the FP7 Project NEPHRON+ (<a href="http://www.nephronplus.eu">www.nephronplus.eu</a>) [April 2010-December 2014] and is the coordinator of the ongoing FP7 project SWAN-iCare (<a href="http://www.swan-icare.eu">www.swan-icare.eu</a>) [September 2012 – now]. Leonidas is the main founder of the LivingMarket EXUS product and serves as the project manager for the development of this product.</p> <p><b>Odysseas Bournas (Mr)</b> is a senior software engineer in the R&amp;D department of EXUS S.A. He holds a Diploma in Electrical &amp; Computer Engineering from the National Technical University of Athens and an MSc in High Performance Computing from the Edinburgh Parallel Computing Centre (EPCC) of the University of Edinburgh. While at EPCC, he worked as an applications developer intern where he co-authored a technical publication on managing batch jobs and data across supercomputing grids. As part of his MSc thesis he contributed code to the OGSA-DAI project which focuses on access and integration of distributed data over the Grid. For the following five years, he worked as a software engineer at Nokia Siemens Networks in Athens, developing and maintaining commercial, multi-tier enterprise applications on top of Java EE for several products belonging to NSN's VoIP portfolio.</p>							



EXUS Ltd							
<a href="http://www.exus.co.uk">http://www.exus.co.uk</a>							
<b>Short name</b>	EXUS	<b>Type</b>	SME	<b>Country</b>	EL	<b>Partner no.</b>	3
<p><b>Dimitris Karamitros (Mr)</b> is a Software Engineer, specializing in mobile software development technologies, in the R&amp;D Department of EXUS S.A., after joining the company in March 2012. Prior to joining EXUS S.A., he was working as a PL/SQL developer in GNT S.A and was involved in several medium scale projects of the public sector (OTE, Ministry of Commercial Shipping). He holds a M.Sc. Degree in Telecommunication &amp; Network Systems from the Department of Informatics and Telecommunications, National and Kapodistrian University of Athens, as well as a B.Sc. in Electrical Engineering from the Technological Education Institute of Athens. During his B.Sc. studies he was awarded twice a scholarship by the National Institute of Scholarships for his academic excellence and was involved for one year in a research project of the Division of Nuclear Physics and Particles, Department of Physics, University of Athens, aiding in the design and construction of a small animal PET prototype.</p> <p><b>Dr. Dimitris Vassiliadis (Mr)</b> is the Head of the EXUS Innovation Attractor. Dimitris is an Electrical and Electronics Engineer that has obtained his degrees from the University of Surrey (BEng, MSc) and the National Technical University of Athens (PhD). Since he joined EXUS in September 2007 he has taken particular interest in seeing the implementation of data-centric approaches for fostering growth in vertical market sectors. His areas of activity include Future Internet and Data Technologies for applications in Tourism, Finance, Creativity and Health. Furthermore, he is actively involved in the Secure Societies initiative of the European Commission, working in specific domains to enhance the safety of citizens, leveraging the advances of the Internet and Data analytics technologies. He is overseeing the coordination and strategic steering of 11 on-going FP7 projects and an overall portfolio of 200+ active research partners. Dr. Vassiliadis has published several scientific papers in International Journals as well as in International Scientific Conferences and Workshops.</p>							
<b>Publications, other research or innovation products, or patents related to the project</b>							
<b>No.</b>	<b>Title of Publication or Name and Short Description of the Product/Service</b>					<b>Relevance for the Project</b>	

1	<p><b>EXUS Financial Suite (EFS)</b></p> <p>EXUS flagship product, the EFS Financial Suite is based on the outcomes of previous innovative research work conveyed by EXUS in the framework of EC co-funded projects. In specific, EFS uses best of breed technologies in the field of scalable data analytics, pattern recognition and analysis, machine learning for continuous adaptation and state of the art visualisation techniques. EFS provides the necessary tools for supporting all the steps of the Risk scoring and management, Loan Origination, Debt Collection and Recovery process for financial institutions or other organisations that deal with transaction-heavy processes in real-time applications (e.g. Telcos, Brokers, Insurance Companies etc.). EFS product enables non-IT expert users (collection managers) to develop detailed collection strategies and to define rules for implementing the strategies, visually through intuitive web tools. So based on the requirements of each customer, every step of the strategy can be set-up using the most suitable paradigm. The representation is translated to specific business processes that are understandable and editable by the collection managers. The EFS enables on the fly changes, as well as the automated production of self-adapting strategies taking into account the whole cycle of the collection process from pre-collections (e.g. SMS notifications for high risk customers before the delinquency date) to early, restructuring, pre-legal, legal, write off and portfolio sale. To that effect, the EFS core engine aggregates disparate data sources both internal and external. Therefore, large historic data sets within the organisation are fully exploited for pattern identification and extraction while social media and other real-time consumer behavioural attributes are leveraged to yield a complete picture. EXUS is an expert in enabling intelligent action in enterprise systems through effective and value-adding real-time information management.</p>	<p>The flagship EXUS product for banks.</p>
2	<p><b>LivingMarket product (extension to EFS)</b></p> <p>Banks hold detailed and accurate financial, transactional (e.g. POS) and socio-demographic (e.g. age) data that can provide insights into and support for, the creation of novel financial services. Banks regard such innovative services as strategic helping to differentiate their offerings and address competition from 'fintech' companies. However, in order to exploit such rich data sets, new ways to deal with data privacy requirements are needed.</p> <p>This product of EXUS introduces a breakthrough anonymisation approach, the first in the banking sector, and a</p>	<p>This product of EXUS provides market insights out of appropriately anonymized financial data. All data management operations are realized within EXUS cloud, with Docker instances deployed per subscriber. This product will significantly gain advantage from the security primitives offered by this project and gain more market push.</p>

EXUS Ltd							
<a href="http://www.exus.co.uk">http://www.exus.co.uk</a>							
Short name	EXUS	Type	SME	Country	EL	Partner no.	3
	set of data analytics methods and tools to derive accurate market and customer insights out of anonymised financial and demographic data. Our approach addresses a novel market of financial services operating with anonymous data.  Although existing attempts showcase the dynamics of transactional data for market and customer insights, they are severely limited in scope and usability. Current solutions are not fit for purpose as they are without support for anonymisation, multi-dimensional analysis capabilities, near real-time updates and merchant-level granularity. LivingMarket addresses those shortcomings and will leapfrog recent efforts made abroad with relaxed privacy concerns.						
3	Leonidas Lymberopoulos and Manos Margaritis. Banking debt collection aided with a Markov Decision Process optimization engine. Paper accepted at 27th European Conference on Operational Research (EURO XXVII), Glasgow, July 12-15, 2015			Describes the optimisation module of LivingMarket and pinpoints the use of financial data within a secure environment inside the bank.			
Relevant previous projects/activities							
EXUS has participated in many FP7 projects in security and is the coordinator of the H2020 project AEGLE that realizes a multiparametric platform using algorithms for analyzing big biodata including features such as volume properties, communication metrics and bottlenecks, estimation of related computational resources needed, handling data versatility and managing velocity. It addresses the systemic health big bio-data in terms of the 3V multidimensional space, using analytics based on PCA techniques. The project will demonstrate its efficiency through the provision of aggregated services covering the 3V space of big bio-data. Specifically it will be evaluated in: a)big bio-streams where the decision speed is critical and needs non-linear and multi-parametric estimators for clinical decision support within limited time, b)big-data from non-malignant diseases where the need for NGS and molecular data analytics requires the combination of cloud located resources, coupled with local demands for data and visualization, and finally c)big-data from chronic diseases including EHRs and medication, with needs for quantified estimates of important clinical parameters, semantics' extraction and regulatory issues for integrated care. The AEGLE project implements state of the art security mechanisms at the data management layer and it has significantly led to EXUS gaining expertise in the secure technologies for cloud environments.							
Relevant available infrastructure / equipment description							
EXUS can provide the following infrastructure for the development, technical testing and integration of the project:							
1. Privately owned cloud infrastructure located at in-house data-room in Athens, Greece.							

EXUS Ltd							
<a href="http://www.exus.co.uk">http://www.exus.co.uk</a>							
Short name	EXUS	Type	SME	Country	EL	Partner no.	3
<p>2. 2 dedicated Servers allowing for the quick and reliable testing of the prototypes developed in the context of the project. The server configuration is as follows:</p> <ul style="list-style-type: none"><li>• DELL SERVER PE R420 E5-2407/8GB LV RDIMM/NO HDD /DVD-RW/PERC H310</li><li>• Intel Xeon E5-2407 2,20GHz, 10M Cache, 6,4GT/s QPI, No Turbo, 4C, 80W,</li><li>• 8GB Memory (2x4GB RDIMM, 1333 MHz, Low Volt, Dual Rank, x4) , NO HDD's , PERC H310 Integrated RAID Controller , 16X DVD+/-RW Drive, iDRAC Enterprise, Dual Hot Plug Power Supplies 550W ,</li><li>• Additional info: 1U RACK Chassis, for Up to 4x 3,5" HDDs , Dual, Hot-plug, Redundant Power Supply (1+1), 550W</li><li>• 16 GB Memory Module for PowerEdge ALL OTHERS- 2Rx4 RDIMM 1600MHz SV NEW</li><li>• 1TB NL SAS 6Gbps 7,2k 3,5" HD Hot Plug Fully Assembled – Kit</li><li>• Intel Xeon E5-2407 2,20GHz,10M Cache,6,4GT/s QPI, No Turbo,4C,80W (Heatsink not included) - kit</li><li>• Heat Sink for Additional Processor - Kit R420</li><li>• PCIe Riser for 2CPUs R420 – Kit</li><li>• Fan 12V 40x40 – Kit</li></ul> <p>3. 3 more dedicated Servers with the following configuration:</p> <ul style="list-style-type: none"><li>• DELL SERVER PE R210 II E3-1220/4GB LV UDIMM/2X1TB/DVD-RW/ PERC S100/</li><li>• Intel Xeon E3-1220 Processor (3,1GHz, 4C/4T, 8M Cache, 80W, Turbo),</li><li>• 4GB Memory (1x4GB Dual Rank LV UDIMM) 1333MHz,</li><li>• 2x1TB SATA 7,2k 3,5" HD Cabled ,PERC S100 RAID controller 0,1, Embedded Broadcom 5716 Dual port Gigabit Ethernet, iDRAC6 Express,</li><li>• 4x8 GB Certified Replacement Memory Module for Select Dell Systems - 2Rx8 UDIMM 1600MHz LV</li><li>• 16X DVD +/-RW, Power Supply (1 PSU) 305W,</li><li>• Additional info: Rack Chassis 1U, for Up to 2x 3,5" CABLED HDDs, RAID 1 with PERC S100 Exactly 2 SAS/SATA/SSD Drives,</li><li>• Single Power Supply (1 PSU) 250W 80+</li></ul> <p>4. 2 dedicated workstations with the following configuration:</p> <ul style="list-style-type: none"><li>• PC DELL OptiPlex 9020SFF i7 4770/4GB/500GB/DVD-RW/W7 PRO EN (64bit) 5Y NBD</li><li>• Intel(R) Core(TM) i7-4770 Quad Core Processor(3,4GHz, 8M, 86W),</li><li>• 4GB (1x4GB) 1600MHz DDR3 Non-ECC, 500GB 3,5inch Serial ATA (7,200 Rpm) Hard Drive, Internal Dell Business Audio Speaker, DVD+/-RW (16x),</li><li>• Windows 7 Pro (64Bit) English</li><li>• Warranty: 5Yr Basic Warranty NBD on site DELL 4GB DDR3-1333 UDIMM 2RX8 Non-ECC</li></ul>							

## 4.2 Third parties involved in the project (third party resources)

### 4.2.1 SIListra Systems GmbH (SIL)

Does the participant plan to subcontract certain tasks?	NO
Does the participant envisage that part of its work is performed by linked 3 <sup>rd</sup> parties?	NO
Does the participant envisage the use of contributions in kind provided by 3 <sup>rd</sup> parties?	NO

### 4.2.2 Sync Lab S.r.l. (SYNC)

Does the participant plan to subcontract certain tasks?	NO
Does the participant envisage that part of its work is performed by linked 3 <sup>rd</sup> parties?	NO
Does the participant envisage the use of contributions in kind provided by 3 <sup>rd</sup> parties?	NO

### 4.2.3 Exus (Exus)

Does the participant plan to subcontract certain tasks?	NO
Does the participant envisage that part of its work is performed by linked 3 <sup>rd</sup> parties?	NO
Does the participant envisage the use of contributions in kind provided by 3 <sup>rd</sup> parties?	NO

## 5. Ethics and Security

### 5.1 Ethics

*Questions we answered with YES in the Ethics issues table (Part A)*

#### 2. Humans

Does your research involve human participants? No

Are they volunteers for social or human sciences research? No

#### 4. Personal Data

Does your research involve personal data collection and/or processing? No

Does your research involve further processing of previously collected personal data (secondary use)? No

### 5.2 Security

This project will **not** involve activities or results raising security issues and will **not** involve 'EU-classified information' as background or results.

## Annex 1: Drafted Coordination Agreement

COORDINATION AGREEMENT  
CONCERNING THE COORDINATED EU PROJECT ON  
SCP  
CONTRACT NO XXXX

BETWEEN

PARTNERS:

SILISTRA SYSTEMS GMBH, DR. MARTIN SÜBKRAUT  
SYNC LAB SRL, ITALY, FERDINANDO CAMPANILE  
EXUS, DR. DIMITRIS VASSILIADIS

The institutions parties to this Coordination Agreement agree to carry out FTIPilot-01-2016 (IA) project called "SCP".

We refer to the Coordination Agreement as the "Agreement"; and the research on secure container platform and pilot applications as the "research activity".

This agreement specifies the research to be conducted; the process through which the partners will assure effective oversight and management of the research; and the arrangements through which the partners will report to their respective funding agencies.

### Article 1: Scope

The partners shall jointly carry out the research activity as set out in the Description of Action, which forms an integral part of this agreement.

The partners shall use reasonable endeavors to achieve the results intended for the research activity and fulfill the mutual obligations arising from this agreement, subject to force majeure and their obligations towards their respective funding agencies.

A partner shall not be liable to take action beyond its reasonable control. The partners shall agree on measures to be taken in the case of force majeure.

### Article 2: Duration

This agreement shall cover a period of 30 months. The starting date is the same as the starting date of the H2020 EU project SCP.

A partner may withdraw from this agreement without any liability towards the other parties following consultation with its funding agency, by giving two months notice to the other partners.

For the avoidance of doubt the validity of this agreement is dependent on a positive funding decision.

The partners, acting jointly and unanimously and subject to the prior approval of their funding agencies, may terminate this agreement or the participation of any individual partner for major technical or economic reasons substantially affecting the research activity, by giving two months written notice to such individual partner.

### Article 3: Financial provisions

#### Secure Container Pilot (SCP)



- 3.1. Each party shall bear its own costs incurred in connection with the performance of the Contract with its grant agency and this Coordination Agreement, carrying out and implementation of this research activity.  
The financial contribution of the European Commission will be distributed according to the projects Grant Agreement.
- 3.2. Each party shall be solely liable for its own financial data. No other Party, including the Coordinator or their representatives acting within the scope of this Coordination Agreement may change these data without expressly given prior written permission of the party concerned.

#### **Article 4: Management of the Coordination**

##### **4.1 Overall Management**

The partners will assure effective overall management of the research activity through:

- (i) communication among themselves and with the funding agency;
- (ii) timely production of deliverables; and
- (iii) integration of their work.

The partners will meet at least once every 12 months and will interact on a day-to-day basis between meetings via electronic means.

Each consortium undertakes to follow the schedule in the technical provisions of project. In view of the evolving character of the project, these production timetables are generally subject to change. To limit the risk, it is desirable to provide for a strict and effective supervision system managed by the coordination structure including:

- frequent progress meetings (ranging from once a month to once per quarter), preferably via electronic means;
- frequent technical and financial progress reports (actions completed and results obtained);
- optional extraordinary meetings as soon as agreed estimated deadlines have been overrun, including the right for the parties to review their position within the co-operative venture based on clearly stated reasons

Scientific workshops will be used with flexibility during the research activity to plan, implement and summarize specific tasks.

#### **Article 5: Publications**

Joint publications generated from the research activity are encouraged. They must include references to funding sources, including relevant award or contract numbers.

Each partner shall, subject to the confidentiality provisions of Article 6, have the right to make public the knowledge and information it generates under this agreement, consistent with good scientific practices, within the laws and regulations of the country within which the partner resides.

#### **Article 6: Confidentiality**

In general, the exchange of information between the partners shall be of a non-confidential nature. However, in the event that one partner desires to impose a restriction of confidentiality on any proprietary information or materials it provides to another partner under this agreement, the partner must clearly label such information or materials “confidential” (hereinafter known as “confidential information”). If

disclosed verbally, confidential information must be reduced to writing within thirty (30) days.

A partner that receives Confidential Information under this Agreement shall use reasonable efforts to prevent its disclosure to third parties, and shall have imposed through appropriate arrangements an obligation on all partners receiving such information to keep it confidential. The obligation to keep information confidential shall continue in effect for the time period agreed by the relevant partners.

A partner that receives Confidential Information under this Agreement shall not be required to maintain confidentiality if the information or materials: (1) are, or subsequently become, public information through no breach of this Agreement; (2) are rightfully in the receiving partner's possession prior to disclosure, as demonstrated by written records; (3) are rightfully disclosed to the receiving partner by a third party; (4) are independently developed by the receiving partner, without reliance upon Confidential Information received under this Agreement; or, (5) are required to be disclosed under local or national laws or regulations to which the receiving partner is subject or court order.

If a partner that receives Confidential Information becomes aware that, under its laws or regulations, it will be, or may reasonably be expected to become, unable to meet the non-disclosure provisions, it shall immediately inform the disclosing partner. The affected partners shall thereafter consult to define an appropriate course of action.

The provisions of this Article shall survive the expiration or termination of this Agreement for one year.

#### **Article 7: Intellectual Property**

All rights to intellectual property made solely by employees of one partner will belong solely to that partner and shall be disposed of in accordance with that partner's policies. Rights to intellectual property developed by staff of two or more partners shall be held jointly by such partners.

In case of joint ownership, the joint owners will establish an agreement regarding the allocation and terms of exercise of that joint ownership. Such an agreement may involve issues such as how to govern the difficulties in continuing with joint ownership depending on the circumstances. If joint ownership is maintained, it could be agreed:

- to have some form of territorial division, by virtue of which one party to the invention owns the invention only in some countries and the other parties are free to register it in other specified countries;
- to have some form of division of application markets, by virtue of which one party to the invention owns the discovery only in business sectors in which it is already active;
- to set up a regime for the protection (e.g. when and how to protect and who bears the costs for protection and possible enforcement);
- to set up a regime for use (including licensing) by the joint owners, within for example specified limits and possible profit sharing.

Joint ownership issues will be regulated in separate joint ownership agreements developed for each joint ownership situation (as a one-size-fits-all approach may not be appropriate in this project).

#### **Article 8: Handling and Use of Data**

Scientists participating in the research activity are encouraged to disseminate their data widely to other interested scientists. The scientists participating in the research activity will retain control of their individual data for 6 months to allow the partners' participants to finish compiling their data for generation of joint databases and publication of scientific results.

The development of joint databases is encouraged. If distributed databases are established, they should

be carefully linked to facilitate easy access.

#### **Article 9: No Legal Formation**

No provision of this Agreement, whether express or implied, shall be construed as establishing, constituting, giving effect to or otherwise recognizing any partnership, joint venture, pooling arrangement, or formal business organization of any kind, even if the term “Partner” is used. No party to this Agreement shall have the right to bind any other party.

#### **Article 10: Dispute Resolution**

In case of a dispute between partners, the partners shall use their best endeavors to settle the dispute amicably.

Any such dispute, which cannot be solved through such endeavors, should be brought to the attention of the funding agency, which will be invited to take action as appropriate to resolve the dispute. The partners shall assure that the funding agency is provided with all information necessary to resolve the dispute.

#### **Article 11: Liability Limitations**

Each partner shall be liable towards the other partners in respect of negligent acts or omissions of itself and of its employees, agents officers and directors and shall secure indemnification for the benefit of the other partners from its subcontractors provided always that such liability shall not extend to claims for indirect or consequential loss or damages such as, but not limited to, loss of profit, revenue, contract or the like and provided that the total, aggregate limit of liability of that partner and any subcontractor of a partner towards all of the other partners collectively in respect of any and all such claims shall not exceed the amount of funding received by the liable partner from the funding agency for the performance of this agreement as specified in the individual grant for that partner.

To the extent permitted by law and subject always to such other undertakings and warranties as are expressly provided for in this agreement, each partner shall be solely liable for any loss, damage or injury to third parties resulting from the execution of its assigned tasks under this agreement and/or from its use of the project results and/or any material provided for the performance of this agreement by the other partners hereunder.

#### **Article 12: Amendment**

This Agreement may only be amended in writing and signed by authorized representatives of each of the partners. This may cover situations when changes to the initial specifications get necessary, and could go as far as including the termination of certain tasks, the withdrawal of certain parties, the inclusion of new partners etc.

#### **Article 13: Miscellaneous**

13.1. The parties acknowledge that if any information and data generated as a result of this coordination is subject to any Export Control Laws or Regulations, the parties agree to comply with the applicable Export Control Laws or Regulations.

13.2. Nothing in this Coordination Agreement shall preclude any party from offering or performing any activities or services that it may regularly offer even though such activities or services may be included in the scope of services covered by this Coordination Agreement.

13.3. No party will be responsible for any failure to perform due to unforeseen circumstances or to causes beyond the party's reasonable control, including but not limited to acts of God, war, riot, embargoes, acts of civil or military authorities, fire, floods, accidents, strikes, shortages of transportation, facilities, fuel, energy, labor or materials, or changes in applicable laws or regulations affecting this Agreement.

**Article 14: Number of copies, languages and signature process**

The Parties have caused this Coordination Agreement to be duly signed by the undersigned authorized representatives in separate signature pages the day and year first above written.

**Article 15: Applicable law & Settlement of disputes**

This Consortium Agreement shall be construed in accordance with and governed by the laws of Belgium.

Authorized to sign on behalf of:

.....

Name: ..... Signature .....

Title ..... Date .....

Name: ..... Signature .....

Title ..... Date .....

Name: ..... Signature .....

Title ..... Date .....