The challenges that ports have faced since the start of 2020 have been varied and severe. In this exclusive interview with Port Technology International Harry Nguyen, CEO, RBS talks about digitization, the value of a cloud-based terminal operating system (TOS) and what is next for his company.

**AS A COMPANY THAT FOCUSES ON INNOVATIVE DIGITAL SOLUTIONS, HOW DO YOU SEE THE DEMAND FOR DIGITALIZATION EVOLVING POST-COVID-19?**

As nations become vulnerable to weakened economies, handling operations have spiralled beyond control. The combination of logjams occurring in terminals, blanked sailings, drastic drops in consumer demand has generated a series of growing complications. Many ports and terminals are at their wits ends and cannot adequately combat the impacts of the crisis with their current infrastructure, catalysing a digitalisation movement.

The maritime and container industry, formerly known to be a traditional industry, will start to emerge from their conventional approaches and expand into automation, the cloud, and artificial intelligence (AI). There are already several innovative products available in the market ready to be used as they offer valuable benefits. Interest in digitalisation was always prevalent, but due to the significant commitment involved in implementing new products, the adoption rate was low. However, the global crisis has rendered problems which continue to evolve and increase in complexity, while the on-demand resources are also proving insufficient, calling for the help of a reliable TOS that can proactively respond to changing circumstances is vital to building a strengthened attempt at developing an integrated supply chain.

Throughout recent events, if one thing is for sure, it is that the virus does not discriminate when it chooses its victims. It has attacked the livelihood and wellbeing of individuals, shackled global trade, and collapsed economies worldwide. For an extended period, many ports and terminals had to enforce some form of quarantine control measure in attempts to contain the outbreak. Without the correct protocols instituted and outdated TOS infrastructures employed in ports and terminals, it has hindered their capacity to effectively respond to the forced operational, political, and environmental changes. Consequently, as authorities experience massive financial setbacks combined with inflexible on-premise TOS solutions unable...
to facilitate a work from home approach, thousands of terminal staff have been laid off. It is a massive wake up call, drawing focus on the accelerating rate of change proportionately increasing with knowledge becoming obsolete.

The global market is so volatile that forecasting and prospecting are unreliable. Such fluctuations have compelled immediate action from ports and terminals to exhaust every alternative possible and optimise on their available resources. Consequently, ineffective planning and allocation of resources have reduced visibility and control capabilities from port authorities. Other challenges disclose the conventional on-premise TOS as resource-intensive, incurring a hefty cost to power and maintain. Even if revenue drops, expenses remain, and much of the on-premise servers are idle or made complacent. Therefore, moving operations to the cloud can generate massive cost savings.

In a crisis, a cloud environment offers safe and secure access from any place and anywhere, supporting the work from home approach. All these benefits convinced our cloud TOS customer in 2017 and have since and are still able to operate during this extremely tough period. Although this terminal based in Hamburg, Germany has experienced lower throughput (as of the rest of the world), we have scaled down their IT resources respectively to help save costs. Despite the disruptions from quarantine control measures implemented in Germany, the terminal allowed their TOS users to conduct container control planning at the comfort of their own homes and are still generating a steady container flow.

An air-tight strategy is favourable, but it leaves little room for agility in responding to unaccounted variables, which is vital in responding to changing conditions. Scaling down resources without compromising the TOS infrastructure and architecture is essential in combating financial challenges. If the commitment involved in transitioning from an on-premise to an all Cloud TOS solution deterred you, it is time to start re-thinking about it. We are living in an extraordinary time that requires forward-thinking and new attitudes to curate a better future.

**WHAT IS THE VALUE OF A CLOUD-BASED TOS?**

Financial burdens are relieved with a Cloud TOS since IT hardware and security no longer must be maintained in-house, and IT resources are scaled accordingly to match what you need. However, in current on-premise TOS solutions, much of their IT hardware and infrastructures require substantial investments to power and maintain. Even if revenue drops, expenses remain, and much of the on-premise servers are idle or made complacent. Therefore, moving operations to the cloud can generate massive cost savings.

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**WHY COULD IT BE PARTICULARLY BENEFICIAL IN TODAY’S EVOLVING CLIMATE?**

Cloud Computing is a trending technology introduced into the Container Handling Industry, arguably deemed as environmentally friendly. Cloud computing reduces the number of data centres worldwide, reducing the impact on the environment. A software employing a cloud service provider is more energy-efficient than using traditional on-premise data centres, mainly because there is a reduction of IT infrastructure used and data centres built that produce emissions into the environment. Since cloud computing is based on the concept of service sharing, it maximises the use of resources and the advanced technologies at these cloud data centres are energy efficient, as they use less energy for lighting and cooling. Also, some cloud computing data centres are now shifting towards renewable energy to power their centres, and this reduces their carbon footprint.
Anytime and anywhere access.

**TOPS Expert Cloud**

Using a Cloud TOS provides better IT operational efficiency than smaller on-premise deployments, due to large-scale dynamic provisioning and multitenancy, which allow for more efficient use of IT resources. Cloud computing, in general, saves more energy and reduces carbon emissions compared to on-premise data centres. Cloud computing is also environmentally sustainable due to its power of dematerialisation, as it replaces physical high-carbon products with virtual elements to help reduce energy use and carbon footprint.

**WHAT IS RBS DOING SPECIFICALLY TO PROVIDE CLOUD-BASED TOS? ARE YOU WORKING WITH ANY PARTNERS CURRENTLY?**

RBS first released a true cloud TOS, TOPS Expert Cloud, in 2017. Since then, we have been factoring in responses and learning from global events to enhance and reconfigure its functionalities which deliver maximum performance. These achievements are also credited by the incredible efforts of our partners across the globe, who work diligently to convey RBS’ vision. They have not only helped us respond to the continually growing demands in performance targets but have transcended such capabilities as we can meet business requirements on a global scale.

Cloud TOS adoption has gained traction in Europe over the past years, and confidence in the innovation is growing. Deployment and implementation within the EMEA region are primarily carried out by RBS EMEA. The team had been facilitating demos and presentations leading up to the outbreak, as well as maintaining communication and offering on-demand premium services to existing cloud TOS customers.

With the rise of cloud centres growing in the South-east Asian region, we are also expecting to see late adopters finally have access to cloud technology and globalize their trade. As a result, we are working alongside our partner, PT. Primus to launch TOPS Expert Cloud and increase availability within the Asia region.

The architecture inherent in TOPS Expert Cloud is purely software as a service (SaaS) in nature, allowing it to operate freely as a standalone application. RBS currently works with Amazon Web Service (AWS), but TOPS Expert Cloud can run on any other platform as a service (PaaS) without compromising performance or functionality. Being the behemoth of cloud service providers, its diversification across the world, enhancing disaster recovery backup has also strengthened our decision to enter the partnership. The decision to employ AWS PaaS derived from its extensive pool of technical experts in cloud technology, reinforcing reliability through high-security enforcements.

We strictly adhere to developing software and solutions of an excellent standard and quality and only form partnerships with companies who share the same outlook. We believe that strengthening our partnerships is pivotal to building a more sustainable and advanced environment for ports and terminals around the globe.

**LOOKING AT THE NEXT 12 MONTHS OR SO, WHAT IS NEXT FOR CLOUD-TOS AND RBS?**

Moving operations onto the cloud builds a foundation for innovation. TOPS Expert Cloud is a pure SaaS developed on a flexible architecture such that it can easily integrate new technology. With such agility, it facilitates compatibility and interoperability with future developments. As a result, TOPS Expert Cloud has established the first-mover advantage by making automation in the cloud possible.

We have invested immense efforts into TOPS Expert Cloud to create a modular system that will seamlessly append new modules. The flexibility offers users to choose from a selection of modules to develop a custom TOS entirely fit to their business requirements. RBS is also in the process of developing a general cargo module to fulfill the entire spectrum of operations. Port and terminal authorities will be able to leverage the cost-cutting benefits of the cloud and select modules to exactly suit their operational needs.

We have recently launched SmartTrack to combat terminal congestion and tackle bottlenecks, which focuses on resource-, process-, and planning-optimisation. SmartTrack combined with optimisation and AI technology embedded within TOPX Expert will assist port and terminals experiencing a sudden influx in container throughput, unmanageable with the current IT infrastructure or TOS capacity.

For a while, the industry was at a technological halt; however, that will change given recent events. Conventional thinking is becoming reprimanded as we all enter a new phase of widespread digitalisation acceptance. RBS plans to focus on continuous developments, creating new modules and enhancements for current customers using TOPS Expert, both in the cloud as well as enterprise version.

**ABOUT THE ORGANIZATION**

Realtime Business Solutions (RBS) is a wholly owned Australian company known to deliver state-of-the-art TOS for the Container Handling Industry since 1991. The company combines delivering a consumer-centric experience with the best innovations to offer premium services and optimal software solutions. SmartTrack, Automation, Optimisation, and Artificial Intelligence are few of the recent product launches since introducing TOPS Expert Cloud, which forms a reliable framework to combat operational efficiencies and financial downturns. We place our clients at the heart of our operations, which compels us to help achieve your goals. Your Success, Our Commitment.