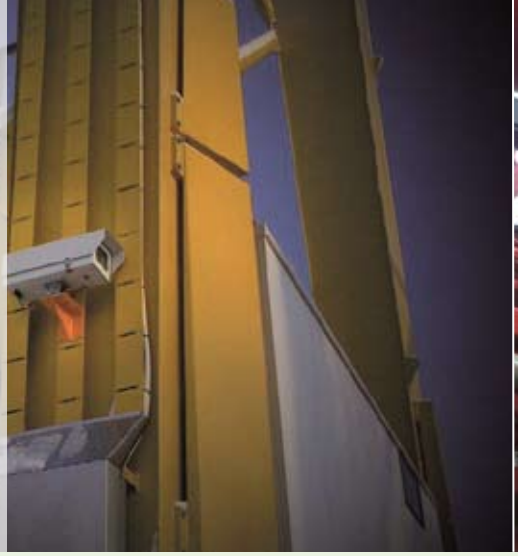
VISY

Visy Oy
Headquarters:
Hatanpään Valtatie 34 D
3rd Floor
33100 Tampere
FINLAND

Tel.: +358 3 211 0403
Fax: +358 3 211 0402

sales@visy.fi
www.visy.fi



The key to efficiency is in the quay

Visy is a leading access and area control systems provider for port authorities, terminal operators, customs agencies, and logistics centres. Visy has designed and implemented the largest customs agency border traffic control system between the EU and the East and the largest Port Access Control System (PACS) in Northern Europe. The company's reference list includes major international ports and terminals and Fortune Global 500 companies.

Effective management of port and terminal operations requires accounting for everything that goes in and out of the site via road, rail or quay. The system that manages these entrance/exit points is often referred to as the "Gate Operating System" (GOS) or in a larger context, the "Port Access Control System" (PACS). The application of the GOS or PACS to road and rail operations is well established. There are many technologies such as optical character recognition (OCR), damage inspection imaging, RFID, biometrics, driver kiosks, and the like, which collect data for software applications that manage complex processes. The individual data-collection technologies are selected for the specific needs of the site with respect to the traffic, operational specifications, and goals. Many ports and terminals have become efficient at managing data collection and utilizing PACS/GOS applications for road and rail operations. However, data collection on the quay or in the yard is often labour-intensive and time-consuming with a likelihood of incorrect data input which causes problems in operations and precludes automation. Additionally, there are significant health and safety risks for personnel working on the quay and near the stacks. Therefore, implementing a Quay GOS (Q-GOS) is a practical way to reduce operating expenses, optimize safety and security, and increase throughput capacity in quay and crane operations.

Q-GOS features and benefits

Much like a road or rail GOS, the Q-GOS is IT-based and can integrate various technologies and features to meet the needs of the terminal. OCR and imaging systems for container code ID, license plate recognition (LPR), and trailer ID can be fixed to CHE including STS cranes, RTG/RMG cranes, automatic stacking cranes (ASC), straddle carriers, and other equipment. The benefit to operators is clear: ID numbers will be automatically collected by the OCR camera system thus eliminating the time and expense of manually entering the codes. Ultimately, the Q-GOS supports terminal automation. On the STS cranes, the cameras can produce high-quality images for damage inspection purposes, thus giving the operator photographic evidence of the condition of the cargo as it arrived at the terminal. OCR data can update the terminal operating system (TOS) with container ID's and the actual order that the units were off loaded. The same data will complement a DGPS system and update the TOS with the container's specific location on the terminal. RFID or OCR can link the container which was moved from the STS to CHE on the quay and update the TOS with the location of the container.

Lost or misplaced boxes are a common problem for many terminal operators. To solve this problem, straddle carriers can be equipped with OCR to roam the stacks. The results will compare the actual yard inventory to the anticipated yard inventory and flag any discrepancies. This automated approach reduces the amount of time and resources required to search for boxes when compared to manual searches. Other straddle carriers equipped with OCR automatically verify that the container being picked-up is the correct container for the specific work order. Biometric devices or ID card readers can be added to CHE to authorize and link a driver and machine to a container movement, thus adding safety and security. The OCR and driver data will be sent to the TOS, PACS, or another system in real-time to provide tracking and tracing of containers with photographic evidence.

Q-GOS design

Good system design requires consistency. Applied to a GOS or PACS this means that the hardware should be commercial-off-the-shelf (COTS) with standard interfaces and software should be commercially available. For example, there are scores of commercial camera manufactures on the market, which offer high-quality cameras. These cameras produce consistent and reliable images for OCR and damage inspection purposes. Using bespoke hardware adds risk and uncertainty to the long-term viability of a project. Bespoke hardware also limits the options that the end user has during periods of service, support, and maintenance.

Commercially available software, from a flexible supplier, can be easily configured to meet local requirements. While many ports and terminals have similar business processes and operating procedures, very few have

identical needs. Inevitably, a newly installed IT system, such as the Q-GOS will be modified to meet local requirements. Such requirements may include translating the user software into the local language or modifying OCR algorithms. On the quayside, perhaps unique cranes or CHE are used so special IT considerations must be made for implementation of damage inspection imaging.

From ship to shore to out the door

A ship's delivery manifest is known to the terminal operator before arrival. As the operator off-loads the vessel, the OCR and damage inspection cameras collect real-time data of the actual containers being delivered. If the wrong box is lifted from a ship, the problem can be solved before the unit touches quayside or, even worse, put in the stack. The images of the boxes are stored for damage inspection purposes so that in the case of an insurance claim, the operator can verify the condition of the container as it arrived at the port. Depending on the type of operation, OCR and RFID can be used together to verify the container that has been handed to the CHE on the quay. An RTG/RMG equipped with OCR will verify and move the box and update the TOS of the actual location. In ASC operations, OCR can be used on the waterside, landside, and during the internal stacking operation. Having OCR at both ends of the stack, and on the cranes in the middle, provides the container ID and photographic evidence of every work order, therefore preventing errors that reduce efficiency. A lorry driver may pick up the box from a container exchange area and the GOS will validate the driver's details for the transaction. If a customs check is required, the PACS will direct the driver to clear the cargo before access permission is granted to exit the port. Immediately before the lorry driver and cargo leave the port, the PACS or GOS may once again verify the driver's ID, registration number, and container ID for security and work order integrity.

Conclusion

While there are many different ways to operate a terminal, the use of advanced operating systems will help reduce operating expenses, optimize safety and security, and increase throughput capacity. The GOS for road and rail are well established and until recently were well ahead of the Q-GOS in terms of functionality. The Q-GOS is the final link of the security and operational chain that promotes terminal automation. By implementing a Q-GOS, quayside processes can be managed with the same efficiency as road and rail processes and deliver a substantial return on investment.

John Lund
Visy Oy

John Lund is the International Sales Manager for Visy Oy and resides in London. John is a graduate of BPP Law School (UK), the Defense Language Institute (USA), Rochester Institute of Technology (USA), and Northeastern University (USA). His background includes a variety of IT-based projects for ports, terminals, borders and logistics centres. Email: John.Lund@visy.fi, UK mobile: +44 753 575 6703.