

*Case Study*

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# Toll IPEC.

Road freight hub of tomorrow.





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We might sometimes forget, but Australia is the only single nation to occupy an entire continent. There are less than three people for every square kilometre, yet we're also one of the most urbanised countries in the world.

With a few densely populated cities separated by long, lonely stretches, it's no surprise that Australia is the world's most intensive user of road freight on a tonne/kilometre basis. A whopping two-thirds of all domestic freight rolls up and down our open roads.

It seems that Australia no longer rides on the sheep's back, but in the air-conditioned passenger seat of a B-Double.

Our domestic freight task has more than doubled over the last 20 years, is expected to almost double again by 2020 and triple by 2050\*.

It is against this backdrop that Dexion was invited by Toll IPEC, part of the Toll Group, the Asian region's leading provider of integrated logistics services, to provide a high-speed parcel sorting solution for their

new Greenfield DC at Larapinta in the bushy outskirts of Brisbane.

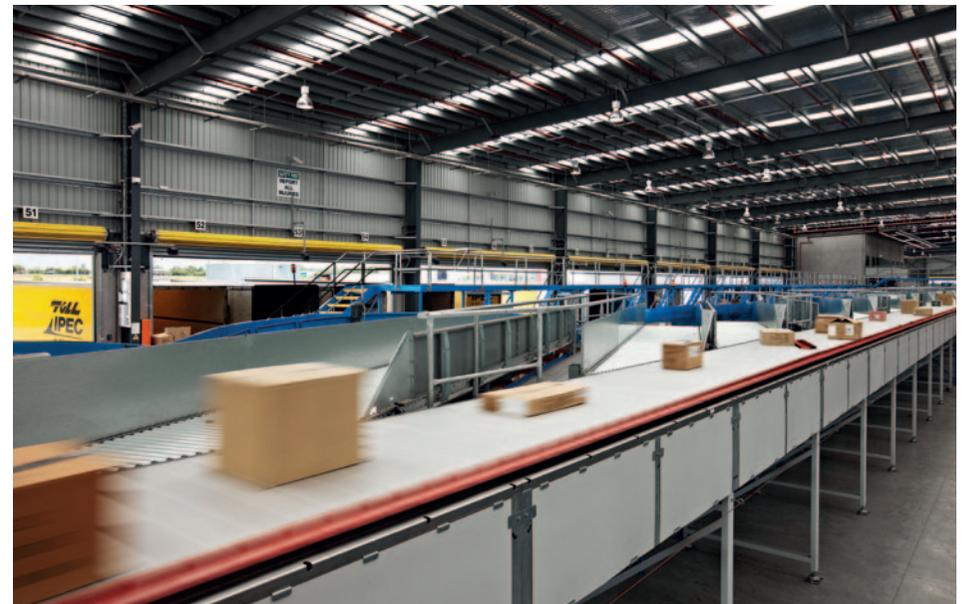
Escalating demand, in particular for its national timetable of road express services, had meant that Toll IPEC's barely-ten-years-old Brisbane hub was already at capacity.

The new plant at Larapinta is a key part of Toll's national strategy of creating capacity for growth without structural bottlenecks or constraints at any point.

Dexion had worked with the Toll Group in the past and had a proven track record in the field. During a competitive tender process, Toll IPEC was shown live Dexion-designed solutions in Melbourne and Sydney to further support their bid and demonstrate their success with system integration and project management capabilities, Dexion was appointed to the contract in April 2009.

#### **Larapinta snapshot.**

Larapinta was officially opened, on schedule, on 19 February 2010.



“The central challenge was to sort the different kinds of freight when it came out of metropolitan and regional vehicles and into the line hauls. Reducing this sort time window is where the big efficiencies were to be gleaned for this client.”

The five-hectare site includes:

- 13,300m<sup>2</sup> warehouse/depot
- 31,000m<sup>2</sup> concrete pavements
- 5,200m<sup>2</sup> car park area
- Gatehouse, fuel, gas and weighbridge facilities
- 2,400m<sup>2</sup> of quality office space
- Fully integrated CBUS electrical system

There are 14 dock levellers for rear end loading and unloading plus space to process a large number of side load trailers. In total, the site is designed to service the equivalent of 60 B-Doubles per day.

### **Real Time Distribution System (RDS).**

The nerve centre of the site is Dexion's Real-Time Distribution System (RDS), a multifunction control platform that coordinates the facility's physical and operational aspects.

Essentially, it bridges the gap between enterprise systems and materials handling

equipment and is specifically engineered to complement rather than compete with the customer's host computer system.

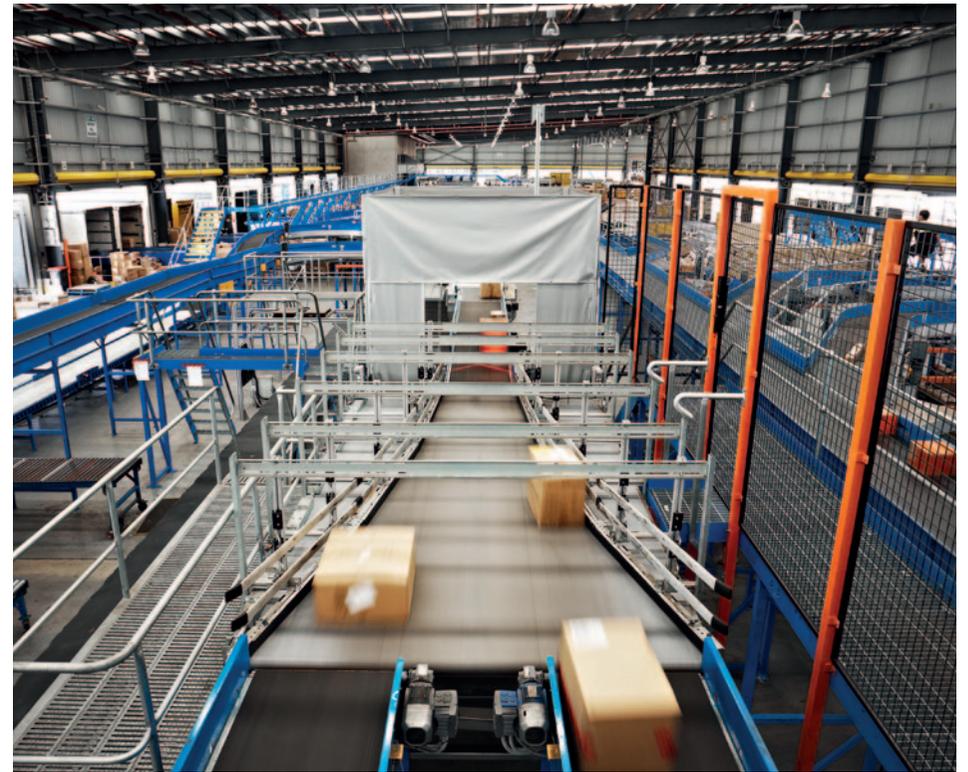
By controlling field devices, sensors, host connectivity and data driven rules, the RDS can deliver real time management of all physical and logical processes.

The user-friendly interface is boldly graphical with the simplicity of point-and-click control. Being web based, the system is accessible from anywhere at any time.

The RDS is also modular in design, a concept that was attractive to Toll IPEC as it helped make the most of capital they had already invested in. It also meant that they only paid for the modules they needed, with the flexibility to add further capability in the future as required.

### **High performance sortation.**

In previous projects similar to Larapinta, Dexion had achieved good results with their Austrian material handling equipment partner, TGW.



“To our mind, TGW's Matrx sliding shoe sorter was the sort of high-performance solution this project needed.” said Dexion's Murdo McKinnon.

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By combining Matrx sortation with an integrated carousel system, Larapinta has the capacity to gently handle goods with

very different dimensions into multiple discharge lanes.

Sort capacity is a rapid 9,000 cartons per hour.

Parcels are conveyed on a sorter bed consisting of extruded aluminium profiles. Shoes slide across these profiles, diverting products to pre-selected destinations. Gaps between parcels are optimised through use of a special batching conveyor, and then guided by means of rubber coated running wheels that ensure a quiet and low-wear operation.

“At full capacity, Larapinta has the ability to process two-and-a-half parcels a second.”

### **Better data, better accountability.**

The recent global financial crisis caused many companies to lower inventories and in some cases eliminate private warehousing altogether. This has put new and extra demands on the road express business.

In 2011, Toll IPEC's customers want more stringent accountability by package and more data collection for their own reporting.

At full capacity, Larapinta has the ability to process two-and-a-half parcels a second. To ensure this speed is not at the expense of accuracy or revenue, the Dexion RDS is fed a complex combination of dimensioning, weight and photographic data of each and every parcel.

Two systems from Scale Components, the Parcelscan II dimensioning system and Carrierweigh CW900 in-motion conveyer scale, provide comprehensive height, length, width and weight measurements.

This information works hand-in-glove with five-sided photographs taken of each parcel by the Datalogic NVS9000 vision

system. By 'reading' information superior to a simple barcode scan, the RDS has the capacity to better recognise and correctly assign irregular parcels, identify side-by-side parcels (which might be 'hidden' to a laser scanner) to be resorted, and ensure that every item has been correctly priced.

### **Towards 2050.**

The name Larapinta comes from an Aboriginal word meaning 'flowing water'. In this southeast corner of Queensland, the fastest growing metropolitan region in the country, these days it is economic growth that is flowing south and west along the Ipswich Motorway.

The Federal Treasury estimates that Australia's population will have ballooned to 35 million by 2050, and the need to drive efficiencies in the transport and logistics supply chain is fast attaining critical national importance.

Though the new Queensland hub has been open barely twelve months, Toll IPEC's



ambitious program of network upgrade rolls on. A near identical facility in WA, also designed in partnership with Dexion, officially opened on 7th February 2011.

It seems the road ahead for Toll IPEC and Dexion will be more travelled, not less.