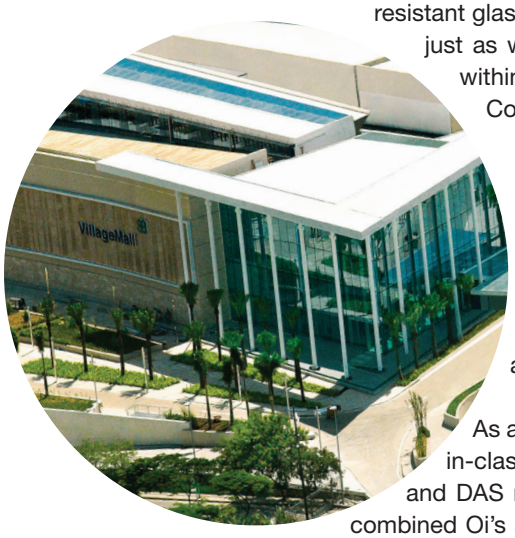
CONVENIENT SHOPPING IN RIO THANKS SPINNER MNCS

Cellphone users are used to the fact that mobile coverage gets worse when they enter buildings. They nevertheless expect perfect usability for their phone. Shopping malls are a case in question, and the new and luxurious Village-Mall in Rio de Janeiro required an efficient solution to such reception problems. About 8,000 square meters of heat-resistant glass covers the aisles and atriums of the building, and that absorbs radio frequencies just as well as steel and concrete. In order to achieve perfect cellphone communication within the mall, a distributed antenna system (DAS) fed by SPINNER's Mobile Network Combining System (MNCS) was installed.



For such a distributed antenna system the various network technologies of multiple operators have to be combined onto a single cable, which then gets distributed to the antennas. However, the combination of multiple frequencies and operators entails a certain risk. The more radio frequencies and operators are combined to one antenna signal, the higher the risk of dysfunction dominated by passive intermodulation (PIM) and isolation between the different signals. This negatively affects the overall radio quality and ultimately the user experience.

As a leading supplier of passive radio frequency (RF) technology, SPINNER offers best-in-class combining and distributing systems to support cost-efficient 2G, 3G, 4G/LTE and DAS roll-outs. Brasilian Carrier Oi is hosting SPINNER's MNCS system, which initially combined Oi's and TIM's 2G, 3G and 4G base stations. In the subsequent steps Vivo and Claro were added, with each using another three radio technologies. The next step will involve Nextel being added to the same system.

"We've been impressed by the excellent quality of SPINNER's MNCS system. Low insertion loss and PIM as well as high isolation are critical for in-building systems and SPINNER's system has convinced us by delivering the best technical performance," said Gerson Monteiro, in-building systems engineer at Oi. "We also saw the flexi-bility of MNCS as advantage since we did not know in the beginning, which radio technologies and operators would be going to join the system. The modularity of the MNCS system with its expansion possibilities is unique."

Anyone who visits a big mall like the VillageMall and goes shopping or visits one of the four cinemas, the theatre or one of the many restaurants will tend to take perfect mobile reception for granted. Cellphone users do not see the tremendous behind-the-scene efforts required to achieve that goal. But thanks to flexible and powerful MNCS from SPINNER, the effort involved for network carriers has now been reduced.

THE CHALLENGE	THE SOLUTION	THE BENEFIT
Requirement for cost efficient combining and distribution system to handle multiple frequencies and carriers Broad frequency spectrum for distribution Uncertainty which frequencies and carriers will be added to the system in the future	SPINNER MNCS system with customized frequencies for input and distribution to 64 antennas within VillageMall. In total four carriers with 45 input frequencies are combined and distributed in one system Pre-configured system for immediate installation and commissioning within VillageMall	Lowering cost due to shared infrastructure (multi-carrier, multi-frequencies) No OPEX for combining and distribution due to fully passive solution (e.g. no power supply) Lowering OPEX at BTS due to extremely low insertion loss Modular MNCS system is flexible for expansions