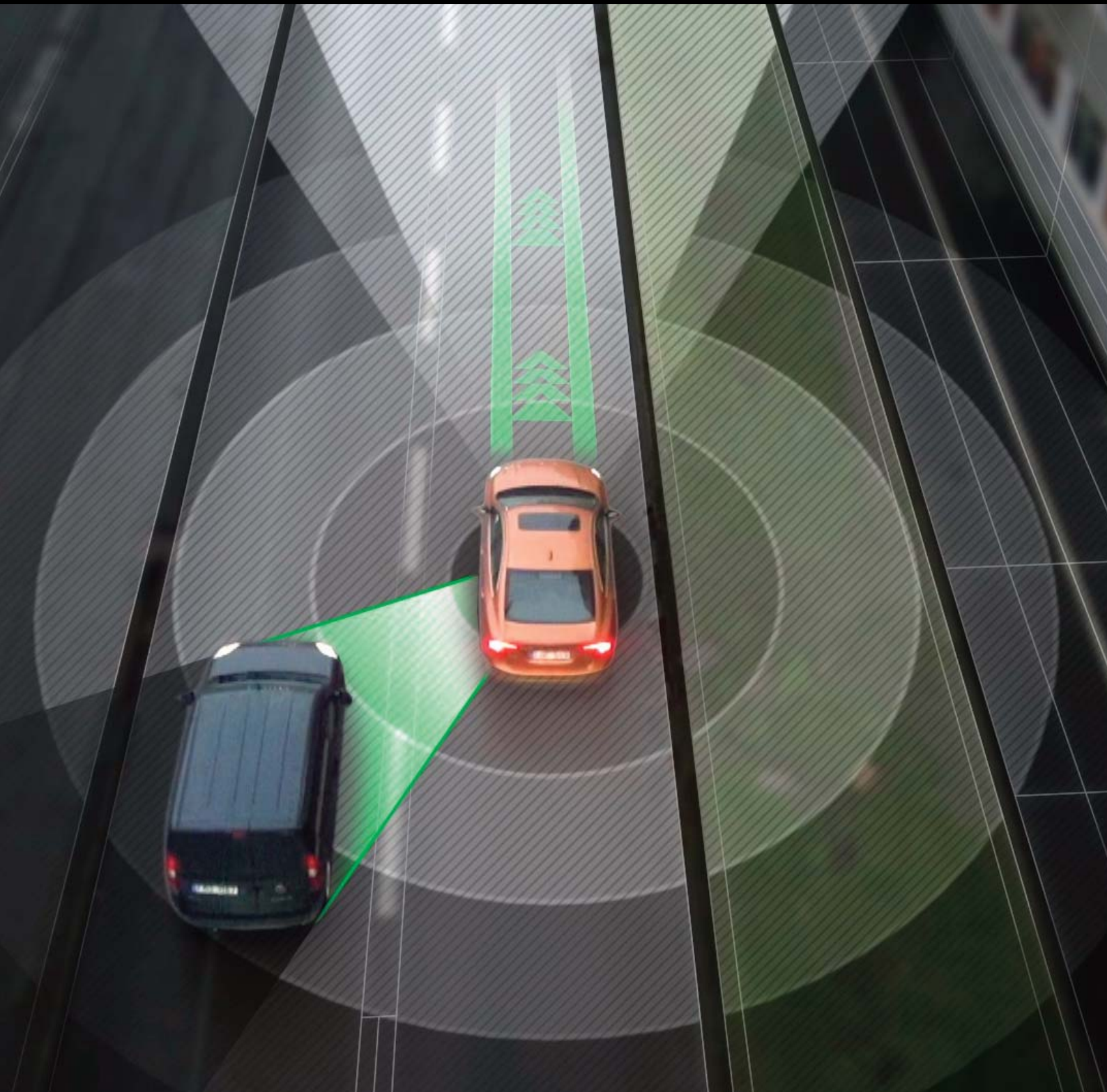# AUTOMOTIVE MEGATRENDS
Magazine | Q1 2016

The Autonomous Car Issue

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Disruption in the dashboard: the evolution of the IVI experience

Megan Lampinen talks to Mark Hatch, COO of ICS, about challenges and opportunities in IVI user experience (UX) development

In-vehicle infotainment (IVI) is undergoing rapid development in light of advances in connectivity, and software specialist ICS is keen to get in on the action. A relative newcomer to the automotive space, the company provides integrated custom software development and user experience design for touchscreen, embedded, mobile and desktop applications for a range of industries. It began working on its first automotive projects about five years ago, and it's been a whirlwind of activity since then.

Proving itself

ICS software engineers have been called in to assist with the likes of developing IVI systems for various mobility scenarios. Some OEMs today want a scalable architecture for IVI design that can be extended across a wide range of vehicle types, and older user interface approaches do not always meet modern expectations of what a touchscreen design should offer. In some cases, ICS has been helping to integrate older hardware, conform to changing middleware and connect it all together with visual assets developed independently.

Touchscreen technology is at the heart of ICS's automotive involvement, which ranges from the likes of a John Deere tractor to a passenger car. It hopes to move more into the vehicle console in the future, but has found it slow going in some cases. "Every so often we look at or talk to people about the console. We haven't played in that area yet," Chief Operating Officer Mark Hatch told *Megatrends*. "There are many standards in that area where safety issues come together. Tier 1s will naturally be more hesitant to move on to new players in those areas."

As a newcomer, it still has much to prove. "We are not Panasonic or Continental. We're a Tier 2 niche player," he admitted. With an eye to establishing itself firmly in the industry, ICS joined the GENIVI Alliance a year ago. GENIVI is pushing for widespread adoption of specified IVI open source software. Bringing a solid IVI engineering background to the group membership of more than 127
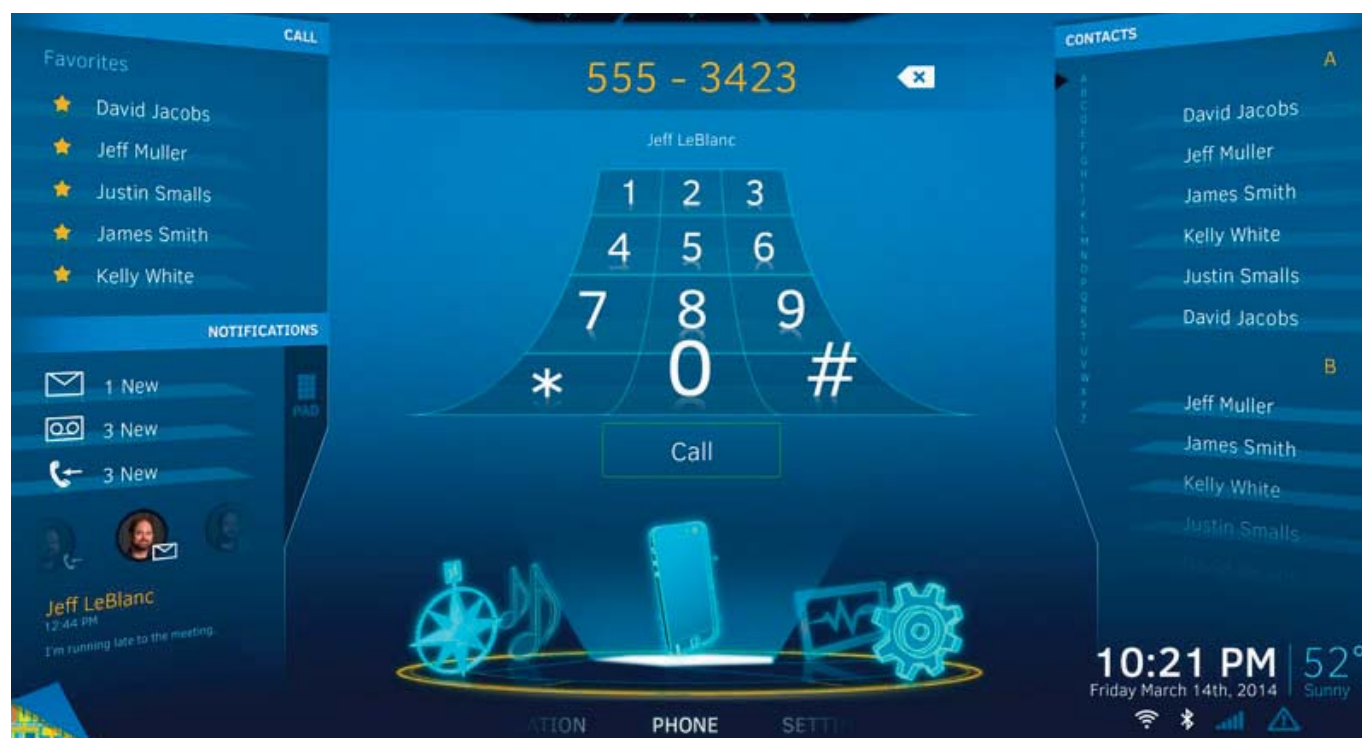
companies, ICS believes it can help provide solutions to the global IVI community. "It's all about being part of the industry as a newcomer and shaking things up," noted Hatch. GENIVI is holding its All-Member Meeting and Open Days in Paris in April, at which ICS hopes to make a big splash. "Watch out for some announcements coming then," hints Hatch.

Connected security

The touchscreen-based IVI systems that ICS helps develop provide drivers with connectivity and interoperability for access to their smartphones along with satellite radio, climate control, iPod integration and navigation control, with the promise of a fluid and intuitive user experience. But with any connected system, security concerns loom large.

"With security, it's all about increased cautiousness. The industry has always been conscious of security but there's nothing like a couple of YouTube videos to wake people up to what can happen," said Hatch, referring to the incident in which two researchers showed how they could hack into a Jeep Cherokee from a building miles away. The demonstration highlighted the weakness of the vehicle's Uconnect infotainment system, which served as an entry route for the hackers. The episode gained much publicity and led to a massive recall. "We've seen increased focus in security," he added.

Standards are also a big unknown. In the application development environments, Qt has been pulling ahead of HTML5, and today all of ICS's automotive projects are Qt-based. The race isn't over yet, though, and while Hatch is personally pulling for a Qt standard he says would not be surprised to see improvements emerge on the HTML5 front.

When it comes to global standards, picking the winner can be anyone's guess. "Some people will wait to see which is the winning standard and then embrace it. Others will either try to guess it or ignore it," he suggested. "But it can take two to three years to get a consensus on standards, and waiting is bad for innovation."

Privacy

Many industry players are also calling for standards on privacy. With the rise of connected technology comes Big Data and the opportunity to monetise this, but at what expense of personal privacy? "People see a big opportunity in taking Big Data to the car. They haven't figured out yet how to monetise it though," he added.

Opportunities like Big Data, connectivity and autonomous driving are opening up the field to new players, and partnerships among players from different segments are increasingly popular. "We're seeing a rise in partnerships between companies, with many looking to work with companies who don't have the traditional mindset constraints," said Hatch. He used the example of driving

the same way to work every day, despite having the option of various routes, some of which may be better. "You naturally get blinded to other approaches, because yours has always worked. The value of partnering with the likes of Apple, Google or IBM is their separate vision. That's the disruptive part of this," he pointed out.

The rise of the disruptors

Apple and Google are among the most talked about industry disruptors today, both in terms of their in-car connectivity systems and their work on concept cars. "We're still waiting to see how CarPlay or Android Auto shake up in the industry," he pointed out. Many vehicle manufacturers have made considerable investments in their own systems, but offerings from Apple and Google are quickly overshadowing them. Speaking to *Megatrends* last year, Karl Brauer, Senior Insights Manager at Kelley Blue Book, pointed out: "While car companies have made substantial progress in the last couple of years with their branded, in-house control systems, spend a few minutes with Android Auto and Apple CarPlay and there's no denying how quickly Google and Apple have leapfrogged the OEMs with their first effort."

Hatch also raised the question of how important a role these systems could come to play in the value of the vehicle and overall buyer appeal. "Is this just an add-on, not much different from the role played by a radio in the 1970s," he asked, "or is this a Trojan Horse?"
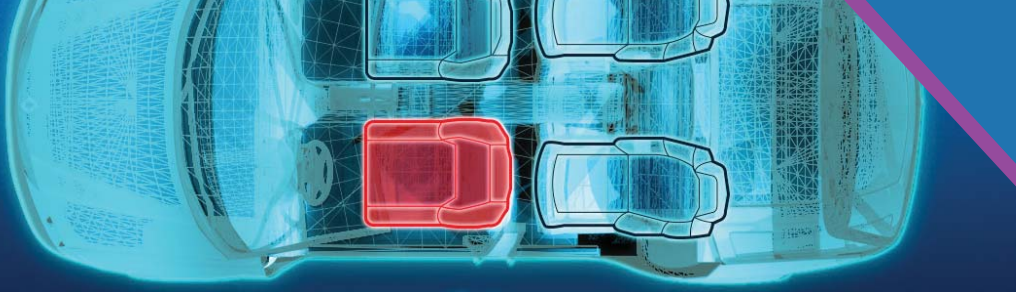
ICS In-Vehicle Solutions

Now Running on GENIVI (GDP) Platform

- Qt Quick user interface
- ICS IVI application framework
- Multi-display Viewpoint server allows for:
    - Rapid prototyping of driving simulations
    - Heads-up displays
    - Digital clusters
    - Video and multimedia prototypes
- UX/UI designed by ICS UX design team

- Fast, responsive, small footprint
- Built-in support for localization
- Multimedia audio & video
- C++ middleware
- Plug-and-play components
- Central media manager manages a range of content sources and a variety of media players

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