SKYTOLL

TRAFFIC
INTELLIGENCE

2015 WINNER
IRF GLOBAL ROAD ACHIEVEMENT AWARDS

www.skytoll.com

At present, an efficient and well-functioning transport sector and the quality of transport infrastructure itself are a prerequisite for the further growth of the economy and ensure the competitiveness of a country.

Ongoing changes in the market environment are influenced by dynamic technological developments. Therefore, the process of selecting an ITS solution and a service provider requires the contracting authorities to focus on the following parameters: construction speed, construction and operation costs, the flexibility of the solution and, of course, the quality, reliability and the potential of the system's further development.

The fact that SkyToll is able to deliver is proven by its successfully implemented projects. For example, in 2019, we were the first in the world in the Czech Republic, together with CzechToll, to replace toll systems, when the original microwave technology was replaced by a cutting-edge satellite technology during full operation of the original system, without traffic or other restrictions. The cost of its operation is three times lower than the operating cost of the first generation of the microwave toll system, despite the fact that the scope of charging increased by 60 % following the commissioning of the new system.

In 2021, within a very short time of only 188 days, we were able to build and commission a new electronic vignette system in Slovenia.

In design, development and operation, we place an emphasis on the profitability as well as on the quality of the solution. We build on the synergy of state-of-the-art, world-recognized and, in the long run, progressive technology.

We are able to solve the new requirements of contracting authorities with maximum flexibility. We can simply add a new system or a service required for an existing solution.

Thanks to unique know-how, SkyToll is strategically prepared to remain a major player on the intelligent transport solutions market in the future as well.

Ing. Matej Okáli
CEO and Chairman
of the Board of Directors of SkyToll, a.s.

COMPANY MILESTONES

2008	SkyToll is active in the field of electronic toll systems
2009	SkyToll wins a tender for an electronic toll system for vehicles weighing over 3.5 tons in Slovakia
2010	Design, development and commissioning of the electronic toll system in the Slovak Republic
2012	Complete replacement of the central system during full operation in 2012
2013	Extension of the toll system to 17,763 km of roads in 3 months
2015	2015 IRF Global Achievement Awards for expanding the toll sections by an additional 15,312 km Deployment of a Weigh-in-Motion system SkyToll wins a tender for electronic vignettes for vehicles weighing less than 3.5 tons in Slovakia On 2 December 2015, launch of electronic vignettes in Slovakia Design of an electronic toll system solution for the Russian Federation A pilot project for charging fees in Moscow's developed urban zones
2016	Pilot project on electronic monitoring and fee collection for road usage in Uruguay
2018	Winning the contract for the electronic toll collection (ETC) system in the Czech Republic
2019	Development of the Electronic Toll System and its commissioning in the Czech Republic
2021	Contract to build a system for payment and enforcement of electronic vignettes and its five-year technological support in Slovenia 1 December 2021 building and commissioning a new electronic vignette system in Slovenia

SKYTOLL PROFILE

SkyToll has worked in the area of intelligent transport information systems capable of analysing and directing traffic anywhere in the world since 2008. As the first in the world, it was able to create a unique solution combining the advantages of several technologies - **satellite** GNSS location technology, **microwave** DSRC technology for short distance communication, and mobile GSM technology to communicate within **mobile** networks and apply it not only to motorways, expressways and first category roads, but also lower-category roads.

A significant advantage of satellite technology compared to other road charging technologies is the flexibility of implementing new requirements. It is capable of managing a future increase in traffic volume and the expansion of the road network. And this happens without the need of building a costly roadside infrastructure required for toll collection.

As of 1 January 2010, SkyToll has operated one of the most state-of-art electronic toll systems in the world, putting Slovakia among the **leaders in electronic toll collection.** The system covered the largest road network in the EU with over 17,600 kilometres of specified sections of motorways, expressways and first, second, and third category roads. Until 2020, it was the longest network of lower-category toll roads in the European Union.

On 1 September 2020, based on a decision of the government, the third-category roads ceased to be a part of the network of the specified road sections and the expressways became a part of the motorways.

Since December 2015, the company's significant references include the construction and operation of the electronic vignette system in the Slovak Republic for vehicles weighing less than 3.5 tons.

At the international level, the references also include pilot projects and consulting activities in the construction of toll systems in the Russian Federation, Uruguay and other countries.

In 2018, SkyToll won the contract for building an electronic toll collection (ETC) system for the Czech Republic as the supplier of the technical solution.

On 1 December 2019, the new Electronic Toll System, based on a cutting-edge satellite technology, was commissioned. SkyToll and CzechToll have thus implemented the first generational replacement of toll systems in the world, when the microwave technology was replaced by the satellite technology.

In May 2021, SkyToll was awarded a contract to build a system for the payment and enforcement of electronic vignettes and its five-year technological support in Slovenia.

In December 2021 the electronic vignette system was commissioned in Slovenia.

THE COMPANY'S BIGGEST SUCCESS STORIES

- We completely built and commissioned the satellite electronic toll system in only 11 months.
- The electronic toll system covered the longest network of specified sections of motorways, expressways and lower-category roads in the European Union with a total length of 17,600 km.
- The ETC system achieved the highest efficiency of toll collection right after the first year of operation - 98.99%.
- Thanks to SkyToll's e-Vignette system, the cost of the government was reduced by up to 60%.
- We won the contract for the electronic toll collection (ETC) system in the Czech Republic.
- We were the first in the world in the Czech Republic, together with CzechToll, to replace toll systems, when the original microwave technology was replaced by a cutting-edge satellite technology under full operation of the original system, without traffic or other restrictions.
- The cost of operating the toll system delivered by SkyToll and CzechToll are three times lower than the cost of operating the obsolete microwave technology from 2006, despite the fact that the scope of charging following the launch of the new system increased by 60%.
- In just 188 days we built and commissioned an electronic vignette payment and enforcement system, including five years of its technological support, in Slovenia.

OUR COMPETENCES

- Consulting
- Pilot studies
- Project management
- Funding
- Technical operation
- Commercial operation
- Support and maintenance
- BPO (Business Process Outsourcing)

Our work is like a set of blocks - by joining various alternatives, inserting new ones and changing the arrangement of the existing ones, or their replacement for more modern ones, we always create an original and unique piece.

SLOVAK REPUBLIC

ELECTRONIC TOLL COLLECTION

On 1 January 2010, the Slovak Republic commissioned one of the most state-of-art electronic toll systems, putting Slovakia among leaders in electronic toll collection worldwide.

Following the expansion of the toll system to all the roads of the 1st, 2nd and 3rd category, SkyToll operated the longest network of lower-category toll roads in the European Union covered by the ETC system.

The toll collection satellite technology covered almost 17,600 km of specified road sections in the Slovak Republic, including about 730 km of specified sections of motorways and expressways, around 3,700 km of specified sections of first category roads, an additional 3,600 km of specified sections of second category roads, and over 9,500 km of specified sections of third category roads. As of 1 September 2020, based on a decision of the government, the third-category roads ceased to be a part of the network of specified road sections and the expressways became a part of the motorways.

The introduction of the electronic toll collection has almost tripled the revenues for the Slovak Republic compared to those of the motorway stickers used in the past.

SkyToll is the only contractor within the EU able to design, develop and commission a complete and fully operational electronic toll system in only 11 months.

Today, the satellite toll system used in the Slovak Republic is technologically prepared to integrate the European toll service providers from neighbouring countries, fully in line with the requirements of the future European Electronic Toll Service based on the principles of "one contract - one OBU - multiple toll systems". Thanks to the technology applied, it can quickly and flexibly implement the future changes and rules of the European Union in pan-European traffic policy.

PROJECT
Design, development, funding, operation and maintenance of a complex electronic toll collection service.

LAUNCH DATE
1 January 2010

IMPLEMENTATION PERIOD
11 months

TOLL ROAD CATEGORIES
Motorways, expressways, first, second, and third category roads

APPLIED TECHNOLOGY
A combination of satellite GNSS/GPS technology, GSM/GPRS technology and microwave (DRSC) technology

EXTENT OF THE TOLL NETWORK
17,600 km*

PERIOD OF SYSTEM OPERATION
13 years

Other services provided by SkyToll for electronic toll collection:

- Toll collection enforcement
- Back office
- Front office
- Geo management
- Marketing and PR

* as of 31 December 2021: 8,199 km

SLOVAK REPUBLIC

ELECTRONIC VIGNETTE

PROJECT
The service of electronic collection and records of payments for motorway vignettes for the use of specified road sections

LAUNCH DATE
2 December 2015

PERIOD OF IMPLEMENTATION
3 months

TOLL ROAD CATEGORIES
Motorways and expressways

EXTENT OF THE TOLL NETWORK
723 km*

TYPE OF CHARGING
Time-based

TYPE OF USERS
Passenger cars weighing less than 3.5 tons

CONTRACT DURATION
31 December 2023

Other services provided by SkyToll for the electronic vignette:

- Back office
- Front office
- Marketing and PR

* as at 31 December 2021

On 2 December 2015, the Slovak Republic commissioned an electronic system for the collection and registration of electronic vignette payments for the use of specified sections of motorways and expressways. Putting the system of e-vignette payment collection and records in electronic form meant a change in the vignette form - paper motorway stickers replaced by vignettes in electronic form.

The obligation to purchase an e-Vignette before using specified sections of motorways and expressways in the Slovak Republic generally applies to motor vehicles with a total weight of up to 3.5 tons.

In the Slovak Republic, it is possible to purchase e-Vignettes with a:

- 1-year validity
- 365-day validity
- 30-day validity
- 10-day validity

The introduction of this modern and cost-effective technology has allowed the government to cut costs in connection with vignette sales by up to 60% while simultaneously increasing sales.

SkyToll was able to design and commission a fully operational e-Vignette system within 3 months.

The SkyToll solution helps ensure that the main goals of deploying the electronic form of motorway vignettes are met, in particular ensuring the effective collection and registration of payments and, in particular, increasing user comfort.

CZECH REPUBLIC

ELECTRONIC TOLL SYSTEM

SkyToll, together with CzechToll, designed, built and on 1 December 2019 commissioned a new electronic toll system in the Czech Republic based on a cutting-edge satellite technology. The new satellite system replaced the original microwave system under full system operation.

On 1 December 2019, the Czech Republic became the first country in the world to carry out generational replacement of its toll system. The existing Kapsch microwave technology was replaced by the satellite toll collection technology.

Following an expansion of the toll system as of 1 January 2020 on motorways and 1st category roads, the satellite toll collection technology covers 2,434.4 km of specified road sections in the Czech Republic, of which approximately 1,332.1 km are specified sections of motorways and 1,102.3 km are specified sections of 1st category roads.

The liability to pay tolls applies to vehicles weighing over 3.5 tons. The amount of tolls depends on the vehicle category, the number of axles, the emission class, the maximum permissible weight, the period of a day and the distance travelled on a toll road depending on the road category. The system takes into account dynamic changes in vehicle weight categories.

Following ist launch the costs of operating the new toll system in the Czech Republic fell to a third and, as a result, the Czech Republic will earn 2.5 billion Czech crowns more on toll collection.

Skytoll and CzechToll, as the only contractors globally, were able to design, build and commission a new electronic toll system in just 14 months and ensure a smooth transition from the microwave to the satellite toll system under full system operation.

The satellite toll system used in the Czech Republic is ready for the European Electronic Toll Service (EETS). Thanks to the technology applied, it can quickly and flexibly implement also future adjustments and regulations of the European Union in the field of the pan-European traffic policy.

PROJECT
Delivery and provision of complex services of electronic toll system operation

LAUNCH DATE
1 December 2019

PERIOD OF IMPLEMENTATION
14 months

TOLL ROAD CATEGORIES
motorways, 1st category roads

TECHNOLOGY APPLIED
combination of satellite technology, GSM/GPRS technology and microwave (DSRC) technology

EXTENT OF THE TOLL NETWORK
2,434.4 km*

PERIOD OF THE SYSTEM OPERATION
10 years

Other services provided by SkyToll and CzechToll for electronic toll collection:

- Toll collection enforcement
- Back office
- Front office
- Geo management
- Marketing and PR

* status as at 31 December 2021

RUSSIAN FEDERATION

ELECTRONIC TOLL COLLECTION

The Russian Federation has joined other countries in charging for the road infrastructure using an electronic toll system based on Progressive Satellite Technology. On 15 November 2015, they introduced the Platon toll system intended for collecting tolls for using federal roads by vehicles weighing over 12 tons.

The toll charges over 50,000 km of roads across the Russian Federation. The toll system uses approximately 2 million On-Board Units (OBUs).

In addition to using OBUs for electronic toll collection, toll payment in the form of tickets is also available for drivers on transit routes. Compliance with the toll payment obligation is checked by almost 500 enforcement gantries.

In designing the electronic toll system solution for the Russian Federation, SkyToll utilised the experience gained in designing, developing and operating the electronic toll system in the Slovak Republic.

Though there was an incomparably greater range of fees, the main issues related to electronic tolls and operational processes were met thanks to many years of experience.

SkyToll, as a project consultant, developed an electronic toll strategy and a methodology for measuring and evaluating the quality of the system.

The services provided included the design of business processes within the electronic tolling system, their architecture, the revision of system requirements as well as the functional specifications and a design for the toll system's development.

The pilot project using satellite technology for charging fees in Moscow's developed, urban areas was implemented by SkyToll in only 14 days.
Forty kilometres of roads were charged in total.

URUGUAY

ELECTRONIC TOLL SYSTEM

Before the start of the project, the Uruguayan government collected tolls using the so-called "stop and go" system, applying RFID technology. Many vehicles subject to the toll payment for motorways were able to avoid the small number of toll plazas and thus avoid paying tolls altogether. In addition to more efficient tolling, the aim of the pilot project was the monitoring of transport in Uruguay and processing the monitoring data for future use.

In 60 days, from September to November 2016, SkyToll successfully implemented a pilot project for electronic monitoring and the collection of fees for road usage, which included 4,615 road sections of different categories.

SkyToll provided consulting services for the design, construction, funding and operation of the electronic toll system as part of a comprehensive nationwide government project aimed at implementing an ETC system.

The pilot solution covers nearly 8,241 km of specified road sections charged by the most advanced toll collection technology, which operates on the principle of GPS navigation, i.e. recording the position of each vehicle via a navigation device (On-Board Unit) inside cars and GPS satellites.

The electronic toll system in Uruguay uses technologically innovative OBUs integrating the following technologies:

- Satellite GPS positioning technology
- GSM / GPRS communication technology within mobile networks
- Existing microwave RFID technology for short- distance communication with OBUs and enabling the service of existing stop-and-go toll gantries.

The chosen toll collection technology provides for the maximum flexibility of the system to manage the future growth of cargo transport volume as well as the expansion of the road networks in Uruguay.

CERTIFICATES AND AWARDS

SkyToll, a.s. introduced and adheres to the Integrated Management System (hereinafter "IMS") according to the requirements of the following ISO standards:

- **STN EN ISO 9001: 2016 / EN ISO 9001: 2015**, (Quality Management Systems);
- **STN EN ISO 14001: 2016** (Environmental Management Systems);
- **ISO/IEC 20000-1** (Service Management System Information technology);
- **ISOI/IEC 27001:2014** (Information Security Management Systems);
- **STN ISO 45001:2019** (Occupational Health and Safety Management Systems); and
- **STN ISO 37001:2016** (Anti-bribery management systems).

In 2015, SkyToll received the 2015 "**Global Road Achievement Awards"**, given annually by the International Road Federation to private and public companies as well as organizations for their outstanding contribution to the development of road transport. SkyToll received the award in the category of "transport management and intelligent transport systems" for a project of expansion of the scope of the Slovak ETC system in 2014.

SKYTOLL

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