



A holistic approach to  
Sports program graphics



## RT SOFTWARE AND YOU DEFINING A NEW GENERATION OF SPORTS CHANNEL AND PROGRAM

*Delivering a sports channel graphics environment like no other ever  
seen in your country, that will engage and excite audiences.*



# A holistic approach to Sports program graphics

## INTRODUCTION

Sports. You have spent a fortune on rights and if you are involved in production of the content itself then these costs skyrocket. There's a few things you need for sure; to add as much value to content as possible, to monetise and to have a killer studio show.

...and RT Software is uniquely positioned to assist. We have years of studio show and OB experience with some of the biggest names in the game, and a set of products that will do their part in taking it all to the next level.

Its all well thought out and integrated too, not the overly complicated and expensive "jig saw" multi box approach you may have seen elsewhere.

- **Overlay graphics:** Must haves for live sport production We offer good integration with data feed providers such as Opta, and sports specific control interfaces for ease of use.
- **Live in game graphics:** This can include virtual advertising and / or graphics that are part of the gameplay such as offsides, 10m circles or quick highlights. Robustness in operation and quick turn around are key.
- **Analysis sequences:** Half time, full time and highlight shows now demand game analysis clips - and you will be impressed when you see how easy and flexible tOG-Sports is. And its not just football, it is used on all sports.
- **In studio touch screens:** This is where our integrated approach starts to deliver. There is a good, customisable studio touchscreen included as standard with our analysis products, but you can extend this further with our Editor. Present league tables, team lists etc - and all fully integrated with your clips and analysis tools.
- **Augmented reality graphics:** The latest "must have" in sports graphics, including the likes of the Touch Table used by ESPN. Our AR and VR capabilities bring graphics and clips of the players right into the studio for unprecedented interaction with the presenters.





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## REFERENCES / EXPERIENCE

RT Software's background was actually News and Elections at the BBC, and we have continued to serve the graphics needs of premium broadcasters around the world. By investing in an RT Software graphics solution you would be following the path of these great sporting names:

- **Sky** is using tOG-Sports in the UK, Australia and New Zealand both live and in the studio on sports as diverse as football, golf, cricket, NFL, horseracing and rugby.
- **Prime Sport** is using tOG-Sports to enhance their PRIME Sports channel's football analysis on Belgium DTV. tOG-Sports was selected after Videohouse, the facility provider for PRIME, concluded from an evaluation of the solutions on the market that it provided unbeatable performance for the price, with an easy-to-use presenter interface and the high quality and range of sports telestration on-air graphics needed to attract viewers.
- **IMG Media** is a global sports media specialist and production company, uses tOG Sports Pro graphical analysis system for their client, the Premier League. Premier League Productions uses the analytical capabilities of tOG Sports Pro as an excellent way to add additional value and content to their existing studio output, which is broadcast globally to over 100 territories.
- **EuroSport** uses tOG-Sports Pro on their Eurosport channel in France and in the UK, including using it for live sports analysis during the French Open tennis tournament and Formula One coverage. EuroSport wanted to make its coverage and analysis of sports events in France more engaging and interesting for its viewers, and tOG Sports certainly delivers.

Other premium sports broadcasters using RT Software for prime time sports coverage and analysis include the BBC, TV2, TG4, Fox Sports, RTL in Germany, Al Kass, BT Vision, Setanta Sports, and many more.





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## OVERLAY GRAPHICS

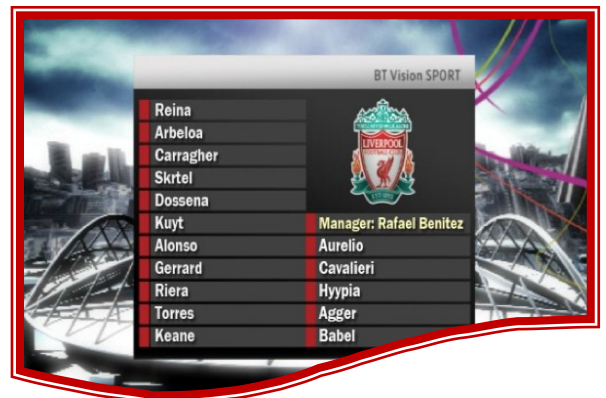
Many companies offer overlay graphics products—from simple character generators to advanced 3D solutions. We offer you overlay graphics solutions covering 2D, entry level 3D and our tOG-3D Pro surpasses even the most demanding customer's criteria. So what differentiates our overlay graphics from the competition? Here's a few points:

- **Render Power:** Efficient, modern software leveraging the native horse power of nVidia's professional range of Quadro graphics cards, our systems empower you with the most dynamic graphics capabilities for real-time broadcast output.
- **Ease of Use:** Quick and easy creation of graphic templates and single-click generation of tOG-Playout interfaces makes tOG 3d Pro a user-friendly tool for designers, implementers and operators. We also have a range of custom interfaces that negate the need for skilled operators in live use.
- **Design Workflow:** Supporting multiple import formats including fbx, obj, psd, png, tga, avi, mov and trueType fonts, tOG-3d Pro enables you to export from favourite content creation applications.
- **Flexible Solutions:** Support for remote control, GPI, multiple live SD/HD SDI video i/o, DVE capabilities, multiple mpeg streaming, audio support and more as standard.
- **Data Friendly:** We work with all the major data providers such as Opta to help ensure graphics are quick, easy and accurate on the day.
- **Cost effectiveness:** Significant price-performance advantages: Carefully qualified off the shelf PC hardware, low list prices for perpetual licenses and no need to buy a multitude of expensive add ons results in one thing, Value for money.

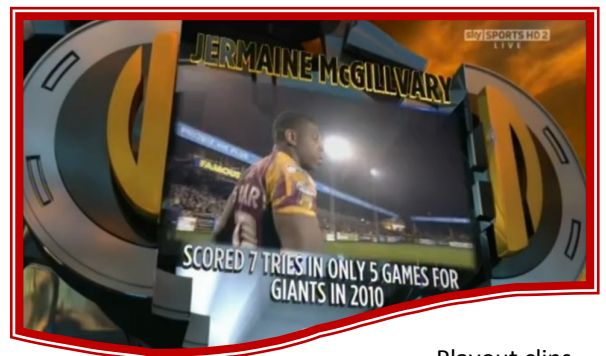
The RT Software overlay graphics will enable you to take to air custom special graphics, with live or recorded video within the graphic, and with the latest in real-time graphics effects.



State of the art effects



Clocks, scores and tables



Playout clips

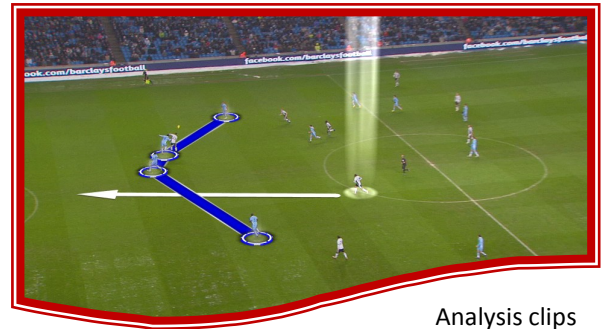


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## TELESTRATION AND ANALYSIS

Analysis. It's a must have these days. Whether it's the quick turn around clips you need during a game like off sides, slightly more engaging analysis for half time or full time or in depth analysis with multiple complex graphics on the pitch and virtual views - you want a system that's quick, easy to use and fits your workflow.

- **Integrated with your content:** Where is the content? Live SDI straight from the camera, clips on the EVS or K2 or even files over the network. Clips on the video servers appear on our interfaces as thumb nails to allow easy selection, with full remote control directly from our interface. Wherever your content resides, we have an elegant solution to work with it.
- **All the graphics tools you need:** Arrows, lines, areas, circles, magnifying glasses, shafts of light, virtual stadiums and virtual views. They are all there, and easily customised - more so than any other vendor in fact.
- **Graphics that look "painted on the pitch":** We have a variety of techniques to put the graphics on the playing surface, and a superb software keyer to put the players on top.
- **Works on all sports:** It doesn't matter what sports you are covering, we'll help you add value. The generic graphics tools are useful everywhere, and we also have tools specific to major sports such as football, rugby, cricket, tennis, horse and motor racing.
- **Two systems in one:** That's right - it is an operator system that can do complex graphics, plus on the same system there is a touch screen for the studio presenters to use. And its easy to customise the presenter screen to work with any size of touch screen, to brand it your way, and to give the presenter just the tools he needs.
- **An affordable building block:** Our prices start low, with no restrictions on usage. You can extend functionality with our Editor to add your own graphics, and bolt our AR module on when you are ready. Are you getting a feel why you should talk to us?.



Analysis clips



Custom user interfaces



Rapid metrics



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## TOUCH SCREENS

Presenter led touchscreen analysis is becoming a cornerstone of big ticket sports studio shows. We have taken years of experience in doing this with some of the leading names in the game to provide you with a range of quick access, affordable options.

Our TOG Sports analysis and telestration products provide a good, easily customised touch screen interface for doing live telestration on your highlight clips as standard, but you can raise the bar by using our Editor to extend this with your own custom application.

- **Wide range of device support:** Wall mount, desk top, single screen, multiple screens, iPads, tablets, 22" to 105" and beyond - we can help you with them all.
- **Integrated with your world:** Your video content, your data and your imagination are all pulled together, and with tOG Sports powerful analysis tools at the heart of the solution we offer a unique solution.
- **Seamlessly tell the story:** Presenters can jump to areas of interest, drill down through the statistics and information on leagues, betting odds and the like. They can easily move between league tables, club line-ups, team statistics and other information manually entered, from an external database or both. Most importantly of all clips can be integrated, along with telestration tools for live analysis in the studio.
- **Smart applications:** You would be surprised just how powerful the touch application can be. There are a lot of smarts built into our software, based on many years providing the election graphics systems to the BBC.

There's a couple of key differentiators with our product. First off its built using a GUI based editor. No nasty scripting means its quick and easy to change things and you need not be dependent on the supplier. But perhaps best of all is the integration you get as standard with all our Sports products with your clips and clip workflow (usually EVS or Grass Valley) and the range of telestration and analysis tools.



POINTS TABLE						
TOP EIGHT						
	P	W	L	PD	PTS	
STORM	19	16	3	213	36	
SEA EAGLES	19	14	5	157	32	
COWBOYS	19	13	6	84	30	
BRONCOS	19	13	6	80	30	
DRAGONS	19	12	6	130	29	
WARRIORS	19	11	8	82	26	
KNIGHTS	19	10	9	25	24	
TIGERS	19	10	9	17	24	





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## MONETISATION

We offer you a few different options to achieve this depending on your circumstances. Of course, live virtual advertising by the host broadcaster is traditionally the key area in the monetisation of content- and we see this as a key growth area for the future - but we offer solutions for rights holders too.

- **At venue production:** We can deliver substantial monetisation opportunities. The obvious area is that of virtual advertisements achieved by adding virtual tiles to the pitch or full on 3D models inserted into the sporting arena. Traditionally we have worked with encoded VR camera heads to achieve this, and under many circumstances this is the optimum solution. However, we are at a crossroads now - with our video based techniques being robust and reliable enough for use under certain circumstances. There are also the branding opportunities of the analysis tools themselves detailed below.
- **Rights holder with live TX:** Here the only option for live virtual inserts into the sports arena is through video based techniques, and the challenge are camera cuts. However, good results can be achieved by building on the tricks we have, perhaps by focusing on replays or by introducing a delay to allow a safety margin in the manual control of the insertions. Again, there are also the branding opportunities of the analysis tools themselves detailed below.
- **Analysis tools:** Various of the tOG-Sports tools - such as the magnifier, are designed for quick and easy logo insertion, plus all tools can be modified with our Editor to include what ever is needed.
- **Studio show:** You can build on the monetisation opportunities in the telestration tools if using a touchscreen in the studio show. Our standard touch screen interface included with tOG Sports is fully customisable by you, and you can have as many interfaces as you like—across different show, sponsors and sports.

The bottom line here is that we can work with you across all of our products to maximise monetisation.



Virtual Inserts



Live on pitch branding



More Branding



# A holistic approach to Sports program graphics

## TOUCH TABLE AND AR GRAPHICS

Unique to RT Software is the augmented reality (AR) touch table, now being adopted by premium broadcasters like ESPN to provide a type of Sports analysis graphics new to the market. This graphics tool provides a fresh and exciting way for you to analyse aspects of a match:

- **Animated 3D Players:** A combination of touch table, encoded ptz head and tOG software provide a augmented reality analysis tool. Virtual players can be seen on the table, with the camera able to zoom in and move. Fixed formations are pre-configured, and presenters can easily move players to illustrate points, with the virtual players actually running to their new positions, and even kicking the ball into the goal. RT Software can customise the strips of the players to match that of the your country's football league.
- **Virtual flythrough and stadiums:** Virtual stadiums can be built, and in addition to real camera movement, virtual camera movements can be configured for fly rounds the players.
- **Player Flick:** Your presenter can select a specific player on the touch screen table and with a flick movement of his finger make that player appear to jump into the studio. This requires you to either supply still photos of each player, or ideally invest in recording short videos of each player against a green screen. With the latter it is possible to really make the viewer think the player is in the studio with the presenters, even looking over to them.

Depending on the style of your show, more AR graphics can be inserted including VT Clips on virtual screens, Player Head to Head stats, and Facebook & Twitter comments. All of these, and other augmented reality creative ideas that your program editors and graphics designer can think of can be custom designed to provide a truly unique graphics experience.

Whilst our solutions can include our GUI Editor for you to be self sufficient, we also have a services division - RT Creative - which can assist you in the creation and implementation of any graphics you desire, whether for Sports, News, Elections etc.



Virtual stadium



Animated players



Player Flick





# A holistic approach to Sports program graphics

## VIRTUAL SETS

RT Software has one of the highest quality real time virtual reality solutions on the market. Of particular note is the high quality chroma keyer, the lens calibration tools and quality of the graphical output due to the superior rendering capability of the tOG graphics engine. Three types of VR sets are available from RT Software, with an upgrade path between them :

- **Bill-Boarded VR:** This is the RT Software entry level VR set approach that would enable you to create the illusion of moving cameras with static, "locked-off" cameras. The effect is achieved by bringing the chroma keyed video of the presenter into the rendering PC and inserting it on a plane (or billboard) in the computer generated set. With good direction, design and execution, subtle camera moves and high production values can be achieved with no extra hardware, significantly reducing the cost for VR sets.

*This is a perfect solution for OB / at venue requirements.*

- **Encoded PTZ Head VR:** This uses encoded pan, tilt and zoom heads to provide data to a tOG-VR system, with the tripod still in a fixed position. Real world camera movement can then be reflected in the virtual reality studio, together with real optical zoom on the presenter.
- **Full Freedom of Movement VR:** This integrates tOG-VR with a third party tracking product to enable more camera movement to be reflected in the virtual set. RT Software has installed VR studios integrated with leading suppliers of such solutions, including Vinten, Shotoku, Mo-Sys, and others.

The big advantage of the tOG-VR solutions to you, other than the high quality and performance, is that there is a clear roadmap between the above three solutions, enabling a progression of capability over time.

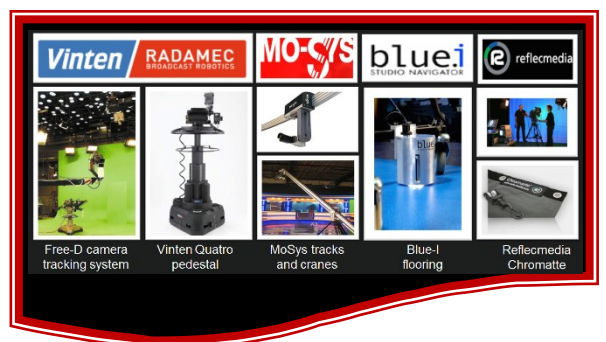
It is the experience and expertise with VR studios that enabled us to bring you the Touch Table and AR graphics, crucial in achieving realistic results when combining the virtual graphics in a real set.



Sports VR set



High quality chroma keying



Integration partners



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## BRINGING IT ALL TOGETHER

The key message of this document is that although RT software can deliver outstanding products for various your graphics requirements, our true strength is in our ability to implement a holistic solution combining multiple real-time 3D graphics products into one solution:

- **Combining VR set and touch table:** Technically it is almost impossible to operate a VR set from one supplier with an AR table from another. The movement of the ptz head used by one system would need to affect the graphics from the other, and visa versa. The RT Software holistic approach to sports graphics supports both solutions working in unity. This also means that at least one of the encoded ptz heads being used by the VR set can also be used by the AR table system, reducing system complexity and price.
- **Real and Virtual Screen Management:** The giant touch screens used by premium broadcaster are expensive, especially once you go above 65". With the RT Software holistic approach, in conjunction with some of your editorial input, the number of such touch screens required in a set can be reduced. For example, if you decide on our touch table for the AR sports analysis, then use the table for the traditional wall mount touch screen graphics and have a virtual display rise from the floor alongside the presenter - now the presenter is talking to the camera and driving the graphics without turning his back to the camera.
- **Planning Control Positions:** If separate manufacturer systems were used by you for each type of graphics required the volume of hardware and the number of control positions would be high. With the RT Software holistic approach it is possible to reduce the number of control positions needed to manage a program.

All of the above requires careful consideration with your editorial considerations. One thing is for sure - with your understanding of the local market and RT Software's technical expertise, together we can create a stable, easy to operate, high quality experience for the viewer.



Flicked player



Virtual screen



Easy control of video



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## INDICATIVE PRICING

RT Software can offer you each of our products as standalone solutions with the following approximate pricing:

- **tOG-Lite overlay graphics:** RT Software can offer tOG-Lite at a great price of only GBP £20K, including all hardware and software. This is powerful and high quality enough for the standard overlay graphics that a sports channel typically needs.
- **tOG-Sports Pro telestration graphics:** RT Software can offer tOG-Sports Pro at a price of about GBP £50K, including all hardware and software. This will enable you to add tied to the pitch graphics during the game, prepare advanced clips (player trails etc) off-line for half time and the highlights shows *plus* a small 22" touchscreen for use by the studio presenter.
- **tOG-Touch:** Budget an additional GBP £10K to add to a 65" touchscreen including a couple of customised and branded touch screen interfaces, giving you great on the wall graphics controlled by the presenter. For another £10K you can have a customised touch screen experience, with league tables, results etc. –see the tOG-Touch clips on our web site.
- **tOG-VR virtual reality studio:** For a 3 camera VR studio, with 3 Vinten250i encoded ptz heads, rendering PC, software and all training the price would be about GBP £120K. A large part of this cost is the third party ptz heads, which can be deducted if not required.
- **tOG-Touch Table:** For a single camera solution with Vinten 250i vr head, render pc and a 65" touchscreen for table and the application as it was at IBC you need to allow about GBP £85k. Additional concepts and graphics can easily be added with our Editor - so it really is down to your vision where we take you.

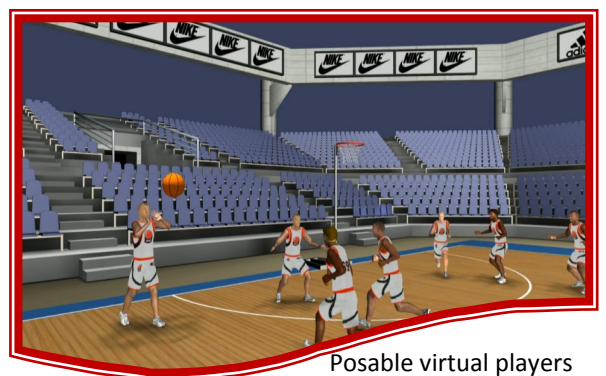
So, our recommendation would be for you to consider a more holistic approach, combining parts of the above to produce a channel with an outstanding, integrated graphics experience for a budget of about GBP £200K.



Virtual off-side lines



Virtual Advertising



Posable virtual players



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## NEXT STEPS

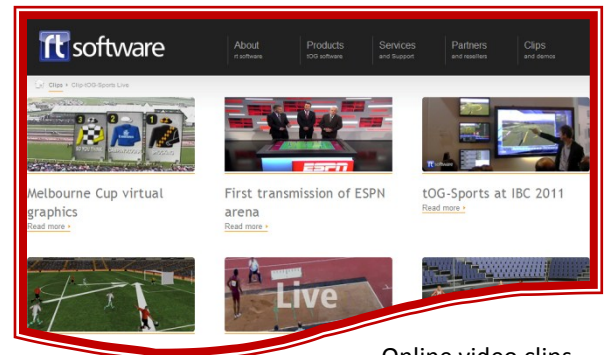
This document has presented a brief taste of the breadth of the RT Software real-time 3D graphics capability, and how our holistic approach to channel and program graphics can help you launch a unique and outstanding new channel. We propose the next steps in this process:

- **On-line Documents and Videos:** A portfolio of documents and video clips are available on the RT Software web site, [www.rtsw.co.uk](http://www.rtsw.co.uk). This includes high level guides to VR sets and Sports Graphics, short marketing brochures, and more detailed technical specifications. The clips available show examples of each product in operation in different sports, by different customers.
- **Editorial / Concept Meeting:** It is proposed that a meeting is held between RT Software and your editorial team to explore and develop graphical concepts for the new channel. This will bring together your team's creative ideas of how best to engage the target audience with the RT software holistic graphics solution approach. Together the most unique and engaging channel can be created with outstanding graphics.
- **Detailed Proposal:** Once the concept is agreed and the budget limitations known, then RT Software will have enough information to provide a complete design proposal with software, hardware and services prices. Various options will probably be presented for immediate implementation, or for potential upgrades in the future. The key thing to note is that RT Software wishes to support you launch and maintain the best sports channel ever in your country.

RT software is extremely keen to work closely with you to make his channel a world leader in terms of graphics quality and audience engagement. We believe that together we have the right experience and technology as a team to deliver this vision.



Brochures and guides



Online video clips



Editorial meeting