In one aspect, an example method is disclosed. The method includes (i) receiving, by a computing system, social media (SM) content; wherein the SM content includes one or more elements; (ii) storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record; (iii) establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template; (iv) generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and (v) modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.
Computing Device

- Processor 102
- Communication Interface 106
- Data Storage Unit 104
- User Interface 108

Figure 1
Receiving, by a computing system, SM content, wherein the SM content item includes one or more elements.

Storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record.

Establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more fields of a template.

Generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links.

Modifying, by the computing system, a program schedule for a video program by inserting the generated schedule object into the program schedule.

Figure 6
MEDIA PRODUCTION SYSTEM WITH SCHEDULING FEATURE

RELATED DISCLOSURES


USAGE AND TERMINOLOGY

[0002] In this disclosure, unless otherwise specified and/or unless the particular context clearly dictates otherwise, the terms “a” or “an” mean at least one, and the term “the” means the at least one.

SUMMARY

[0003] In one aspect, an example method is disclosed. The method includes (i) receiving, by a computing system, social media (SM) content, wherein the SM content includes one or more elements; (ii) storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record; (iii) establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template; (iv) generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and (v) modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

[0004] In another aspect, an example non-transitory computer-readable medium is disclosed. The computer-readable medium has stored thereon program instructions that upon execution by a processor, cause performance of a first set of acts including (i) receiving, by a computing system, SM content, wherein the SM content includes one or more elements; (ii) storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record; (iii) establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template; (iv) generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and (v) modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

[0005] In another aspect, an example computing system is disclosed. The computing system is configured for performing a set of acts including (i) receiving, by a computing system, SM content, wherein the SM content includes one or more elements; (ii) storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record; (iii) establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template; (iv) generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and (v) modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a simplified block diagram of an example computing device.

[0007] FIG. 2 is a simplified block diagram of an example video system.

[0008] FIG. 3 is a simplified block diagram of an example video production system.

[0009] FIG. 4A is a simplified diagram of an example frame of video content, without content overlaid thereon.

[0010] FIG. 4B is a simplified diagram of an example frame of video content, with content overlaid thereon.

[0011] FIG. 5 is a simplified block diagram of an example program schedule.

[0012] FIG. 6 is a flow chart of an example method.

DETAILED DESCRIPTION

I. Overview

[0013] A video-production system (VPS) can generate video content that can serve as or be part of a video program (e.g., a news program). The VPS can then transmit the video content to a video-broadcast system (VBS), which in turn can transmit the video content to a first end-user device for presentation of the video content to an end-user.

[0014] The VPS can include various components to facilitate generating video content. For example, the VPS can include a video source, a DVE system, a scheduling system, and a sequencing system. The video source can generate video content, and can transmit the video content to the DVE system. The DVE system can use the video content and a DVE template to execute a DVE, which can cause the DVE system to generate new video content that is a modified version of the received video content. For example, the generated video content can include the received video content with local weather content overlaid thereon.

[0015] The scheduling system can create a program schedule, perhaps based on input received from a user (e.g., a producer or technical director) via a user interface. The sequencing system can process records in the program schedule, and based on the processed records, can control one or more components of the VPS, such as the video source and the DVE system, to facilitate generating video content.

[0016] In one example, the VPS can also include a second end-user device, a content system, and a character generator. The second end-user device can transmit media content to the content system. For example second end-user device can capture video content (e.g., using a camera) and can transmit the captured video content to the content system.

[0017] After the content system receives media content, the content system can then forward the received media content to the character generator. Alternatively, the content system can store the media content and later can retrieve and transmit the media content to the character generator.

[0018] The character generator can receive the media content from the content system. The character generator can then use the received media content to generate video content that includes the received media content. Further, the character generator can transmit the generated video content to the DVE system.
[0019] The DVE system can receive the video content and can execute a DVE, which causes the DVE system to generate video content that includes the received video content. The generated video content can serve as or be part of a video program. Thus, in this way, the VPS can integrate captured video content into a video program.

[0020] In one example, the VPS can also include a content system and a character generator. The content system can obtain SM content, and the character generator can then use the SM content to generate video content that includes the SM content. Further, the character generator can transmit the video content to the DVE system. The DVE system can receive the video content and can execute a DVE, which causes the DVE system to generate video content that includes the received video content and thus, that also includes the SM content. The generated video content can serve as or be part of a video program. Thus, in this way, the VPS can integrate SM content into a video program.

[0021] The content system can store SM content in various ways. In one example, the content system can receive SM content and can store each of one or more elements of the received SM content into a respective one of one or more fields of a record for the SM content. For example, in the case where the SM content includes two elements, namely a first element that is a profile image corresponding to a publisher of the SM content, and a second element that is a text published by the publisher in connection with the SM content, the content system can store the first element in a first field of the record, and can store the second element in a second field of the record.

[0022] The character generator 308 can use SM content and a character generator template to generate and/or output video content that includes the SM content. A character generator template can include one or more placeholders, each of which the character generator can replace with a respective element of SM content. By replacing the placeholders in this way, the character generator can generate video content that includes the SM content. To specify how the character generator can use the template to generate video content that includes the SM content, the character generator can establish a link between each of the one or more fields of the record and a respective one of one or more placeholders of the template.

[0023] As such, in the case where a record for SM content includes a first element stored in a first field of the record and further includes a second element stored in a second field of the record, and where a template includes two placeholders, namely a first placeholder and a second placeholder, the character generator can establish a first link between the first field of the record and the first placeholder, and can further establish a second link between the second field of the record and the second placeholder.

[0024] The character generator can then use the record, the template, and the established links to generate video content that includes the SM content. In particular, based on the first link, the character generator can replace the first placeholder with the element stored in the first field of the record (i.e., the first element of the SM content). Likewise, based on the second link, the character generator can replace the second placeholder with the element stored in the second field of the record (i.e., the second element of the SM content). By replacing placeholders with elements of SM content in this way, the character generator can generate video content that includes the SM content.

[0025] After the character generator establishes one or more links between one or more fields of a record and one or more placeholders of a template, the character generator can generate a schedule object that identifies the record, the template, and the established one or more links. The generated schedule object can be used for various purposes. For example, it can allow the scheduling system to schedule an instance where the character generator uses the identified record, the identified template, and the identified one or more links to integrate SM content into a video program.

[0026] In one example, the scheduling system can modify a program schedule by inserting a generated schedule object into the program schedule. As such, the scheduling system can modify a program schedule by inserting a generated schedule object into the program schedule. After the scheduling system modifies the program schedule, the sequencing system can access the modified program schedule, can select the inserted schedule object, and can use the selected schedule object to facilitate generating video content that includes the received SM content. These features and related features are described in greater detail below.

II. Example Architecture

[0027] A. Computing Device

[0028] FIG. 1 is a simplified block diagram of an example computing device 100. The computing device can be configured to perform and/or can perform one or more acts and/or functions, such as those described in this disclosure. The computing device 100 can include various components, such as a processor 102, a data storage unit 104, a communication interface 106, and/or a user interface 108. Each of these components can be connected to each other via a connection mechanism 110.

[0029] In this disclosure, the term “connection mechanism” means a mechanism that facilitates communication between two or more components, devices, systems, or other entities. A connection mechanism can be a relatively simple mechanism, such as a cable or system bus, or a relatively complex mechanism, such as a packet-based communication network (e.g., the Internet). In some instances, a connection mechanism can include a non-tangible medium (e.g., in the case where the connection is wireless).

[0030] The processor 102 can include a general-purpose processor (e.g., a microprocessor) and/or a special-purpose processor (e.g., a digital signal processor (DSP)). The processor 102 can execute program instructions contained in the data storage unit 104 as discussed below.

[0031] The data storage unit 104 can include one or more volatile, non-volatile, removable, and/or non-removable storage components, such as magnetic, optical, and/or flash storage, and/or can be integrated in whole or in part with the processor 102. Further, the data storage unit 104 can take the form of a non-transitory computer-readable storage medium, having stored thereon program instructions (e.g., compiled or non-compiled program logic and/or machine code) that, upon execution by the processor 102, cause the computing device 100 to perform one or more acts and/or functions, such as those described in this disclosure. These program instructions can define and/or be part of a discrete software application. In some instances, the computing device 100 can execute program instructions in response to receiving an input, such as from the communication interface 106 and/or
the user interface 108. The data storage unit 104 can also store other types of data, such as those types described in this disclosure.

The communication interface 106 can allow the computing device 100 to connect with and/or communicate with another entity according to one or more protocols. In one example, the communication interface 106 can be a wired interface, such as an Ethernet interface or a high-definition serial-digital-interface (HD-SDI). In another example, the communication interface 106 can be a wireless interface, such as a cellular or Wi-Fi interface. In this disclosure, a connection can be a direct connection or an indirect connection, the latter being a connection that passes through and/or traverses one or more entities, such as a router, switcher, or other network device. Likewise, in this disclosure, a transmission can be a direct transmission or an indirect transmission.

The user interface 108 can include hardware and/or software components that facilitate interaction between the computing device 100 and a user of the computing device 100, if applicable. As such, the user interface 108 can include input components such as a keyboard, a keypad, a mouse, a touch-sensitive panel, and/or a media capturing device (e.g., a microphone and/or a camera), and/or output components such as a display device (which, for example, can be combined with a touch-sensitive panel), a sound speaker, and/or a haptic feedback system.

The computing device 100 can take various forms, such as a workstation terminal, a desktop computer, a laptop, a tablet, a mobile phone, a set-top box, and/or a television.

B. Video System

FIG. 2 is a simplified block diagram of an example video system 200. The video system 200 can perform various acts and/or functions related to video content, and can be implemented as a computing system. In this disclosure, the term “computing system” means a system that includes at least one computing device. In some instances, a computing system can include one or more other computing systems.

The video system 200 can include various components, such as a VPS 202, a VBS 204, and an end-user device 206, each of which can be implemented as a computing system. The video system 200 can also include a connection mechanism 208, which connects the VPS 202 with the VBS 204; and a connection mechanism 210, which connects the VBS 204 with the end-user device 206.

FIG. 3 is a simplified block diagram of an example VPS 202. The VPS 202 can include various components, such as a video source 302, an end-user device 304, a content system 306, a character generator 308, a digital video-effect (DVE) system 310, a scheduling system 312, and a sequencing system 314, each of which can be implemented as a computing system. The VPS 202 can also include a connection mechanism 316, which connects the video source 302 with the sequencing system 314; a connection mechanism 318, which connects the video source 302 with the DVE system 310; a connection mechanism 320, which connects the end-user device 304 with the content system 306; connection mechanism 322, which connects the content system 306 with the sequencing system 314; a connection mechanism 324, which connects the content system 306 with the character generator 308; a connection mechanism 326, which connects the character generator 308 with the sequencing system 314; a connection mechanism 328, which connects the character generator 308 with the DVE system 310; a connection mechanism 330, which connects the DVE system 310 with the sequencing system 314; and a connection mechanism 332, which connects the scheduling system 312 with the sequencing system 314.

The video source 302 can take various forms, such as a video server, a video camera, a satellite receiver, a character generator, or a DVE system. An example video server is the K2 server provided by Grass Valley of San Francisco, Calif.

The character generator 308 can take various forms. An example character generator is the VIZ TRIO provided by Viz Rt of Bergen, Norway. Another example character generator is CASPAR CG developed and distributed by the Swedish Broadcasting Corporation (SVT).

The DVE system 310 can take various forms, such as a production switcher. An example production switcher is the VISION OCTANE production switcher provided by Ross Video Ltd. of Iroquois, Ontario in Canada.

The scheduling system 312 can take various forms. An example scheduling system is WO TRAFFIC provided by WideOrbit, Inc. of San Francisco, Calif. Another example scheduling system is OSI-TRAFFIC provided by Harris Corporation of Melbourne, Fla.

The sequencing system 314 can take various forms. A sequencing system is sometimes referred to in the industry as a “production automation system.”

Referring back to FIG. 2, the VBS 204 can include various components, such as a terrestrial antenna or a satellite transmitter, each of which can be implemented as a computing system.

Each of the video-based entities described in this disclosure can include or be integrated with a corresponding audio-based entity. Also, the video content described in this disclosure can include or be integrated with corresponding audio content. More generally, the entities can be media-based entities such as a media production system (MPS) and a media broadcast system (MBS).

III. Example Operations

The video system 200 and/or components thereof can perform various acts and/or functions. These features and related features will now be described.

The video system 200 can perform various acts and/or functions related to video content. For example, the video system 200 can receive, generate, output, and/or transmit video content that can serve as or be part of a video program (e.g., a news program). In this disclosure, the act of receiving, generating, outputting, and/or transmitting video content can occur in various ways and/or according to various standards. For example, the act of receiving, outputting, and/or transmitting video content can include receiving, outputting, and/or transmitting a video stream representing the video content, such as over Internet Protocol (IP) or in accordance with the high-definition serial digital interface (HD-SDI) standard. Likewise, the act of generating content can include generating a video stream representing the video content. Also, the act of receiving, generating, outputting, and/or transmitting video content can include receiving, generating, outputting, and/or transmitting an encoded or decoded version of the video content.

The VPS 202 can perform various acts and/or functions related to video content production. For example,
the VPS 202 can generate and/or output video content, and can transmit the video content to another entity, such as the VBS 204.

[0049] Referring back to FIG. 3, within the VPS 202, the video source 302 can generate and/or output video content, and can transmit the video content to another entity, such as the DVE system 310. In practice, the VPS 202 is likely to include multiple video sources and corresponding connection mechanisms, each connecting a respective one of the video sources with the DVE system 310.

[0050] As noted above, the video source 302 can take the form of a video server. A video server can record and/or store video content (e.g., in the form of a file). Further, the video server can retrieve stored video content and can use the retrieved video content to generate and/or output a video stream representing the video content. This is sometimes referred to in the industry as the video server playing out the video content. The video server 302 can then transmit the video stream, thereby transmitting the video content, to another entity, such as the DVE system 310.

[0051] The end-user device 304 can perform various acts and/or functions related to media content, perhaps based on input received from a user (e.g., a field reporter) via a user interface. For example, the end-user device 304 can obtain and/or generate media content. In one example, the end-user device can do this by using a video capturing device (e.g., a camera) of the end-user device 304 to capture video content. In one use case, this can allow the end-user device 304 to capture video content of a newsworthy event, such that it can be integrated into a news program. In another example, the end-user device 304 can download media content from a media source. The end-user device 304 can then transmit the media content to another entity, such as the content system 306. In one example, the end-user device 304 can store the media content in a data storage unit (e.g., a data storage unit of the end-user device 304). At a later time, the end-user device 304 can select and/or retrieve the stored media content, and can transmit it to another entity, such as the content system 306. In one example, the end-user device 304 can use one software application to capture and store video content, and can then use another software application to select, retrieve, and transmit the video content.

[0052] In another example, the end-user device 304 can capture video content and, at or about the same time that the video content is being captured (i.e., without significant delay), can transmit the captured video content to another entity, such as the content system 306. This is sometimes referred to in the industry as a live video transmission or a live video stream. Notably, even when the end-user device 304 is transmitting video content in this manner, the end-user device 304 can still store, select, and/or retrieve the video content as part of this process. For example, the end-user device 304 can store the video content in, and can retrieve it from, a memory buffer to facilitate the receipt and transmission of the video content. In one example, the end-user device 304 can use one software application to both capture and transmit video content in this manner.

[0053] In some cases, the end-user device 304 can determine data related to captured video content, which the end-user device 304 can transmit along with the video content (e.g., as metadata). For example, the end-user device 304 can determine a location of the end-user device 304 (e.g., in the form of global positioning system (GPS) coordinates) where it was capturing video content. As another example, the end-user device 304 can determine a date and/or time when the end-user device 304 was capturing video content.

[0055] Like the end-user device 304, the content system 306 can perform various acts and/or functions related to media content, perhaps based on input received from a user (e.g., a producer or technical director) via a user interface. For example, the content system 306 can receive media content and can do so in various ways. In one example, the content system 306 can receive media content from another entity, such as the end-user device 304.

[0056] The content system 306 can also store, select, and/or retrieve media content. As such, the content system 306 can store received media content in a data storage unit (e.g., a data storage unit of the content system 306), and can then receive the media content by selecting and retrieving it from the data storage unit. The content system 306 can also perform similar acts in connection with data relating to media content, such as data relating to video content, as discussed above.

[0057] The content system 306 can also modify video content and/or related data, and can do so in various ways. In one example, the content system 306 can modify video content using a video-editing software application. Among other things, this can allow the content system 306 to removing vulgurities, personal information, and/or extraneous information that is not suitable or desirable for integration into a video program. In another example, the content system can modify the related data by adding a unique identification (ID) number to the data to facilitate managing the corresponding video content. In another example, the content system can add a tag, keyword, or description to the corresponding video content.

[0058] The content system 306 can also transmit media content to another entity, such as the character generator 308. In some cases, receiving and transmitting media content can include forwarding the media content. In other cases, receiving and transmitting media content can include receiving the media content and transmitting a copy of the media content. As such, in one example, the content system 306 can receive video content from the end-user device 304, and can transmit a copy of the video content to the character generator 308.

[0059] In one example, the content system 306 can receive media content from the end-user device 304 and, at or about the same time that the media content is being received (i.e., without significant delay), can transmit the media content to another entity, such as the character generator 308. Notably, even when the content system 306 is transmitting media content in this manner, the content system 306 can still store, select, and/or retrieve the media content as part of this process. For instance, the content system 306 can store the media content in, and can retrieve it from, a memory buffer to facilitate the receipt and transmission of the media content.

[0060] The content system 306 can also perform various acts and/or functions related to SM content. In this disclosure, "SM content" is content that has been published on a SM platform, which is a computer-based tool that allows users to create, share, and/or exchange content (e.g., in the form of text, images, and/or videos) in virtual communities on a computer-based network such as the Internet. Examples
of SM platforms include TWITTER, YOUTUBE, FACEBOOK, PERISCOPE, INSTAGRAM, MEERKAT, LINKEDIN, and GOOGLE+.

[0061] The content system 306 can receive SM content and can do so in various ways. For example, the content system 306 can receive SM content by obtaining it from another entity, such as a SM platform. In one example, the content system 306 can obtain SM content directly from a SM platform. In another example, the content system 306 can obtain SM content from a SM platform via a SM dashboard application (e.g., TWEETDECK, CYFE, or Hootsuite). In some instances, a SM dashboard application can provide additional searching and browsing functionalities (e.g., based on trend analysis or analytics) that may not be provided by the SM platform itself, and/or can provide access to multiple SM platforms through a single user interface.

[0062] SM content can include various elements such as (i) data indicating the SM platform from which the SM content was received, (ii) data identifying the publisher of the SM content (e.g., an account identifier, such as a username), (iii) a profile image corresponding to the publisher of the SM content, (iv) text published by the publisher in connection with the SM content, (v) an image published by the publisher in connection with the SM content, (vi) audio content published by the publisher in connection with the SM content, (vii) video content published by the publisher in connection with the SM content (viii) a timestamp indicating a time and/or date at which the SM content was published on the SM platform, (ix) a location (e.g., represented by a global positioning system (GPS) coordinates) of the publisher when the SM content was published, (x) a location at which an aspect of the SM content occurred (e.g., where a video recording was taken or where a photograph was taken), (xi) a timestamp indicating when an aspect of the SM content occurred, (xii) a number of other users associated with the publisher on a SM platform (e.g., a number of friends or followers), (xiii) an indication of how long the publisher has been a user of a SM platform, (xiv) a number of times the SM content has been shared (e.g., retweeted) by other users of a SM platform, (xv) a number of posts by the publisher on a SM platform, and/or (xvi) any other data that can be integrated into a video program.

[0063] The content system 306 can also store, select, and/or retrieve SM content, perhaps based on input received from a user (e.g., a producer or technical director) via a user interface. As such, the content system 306 can store obtained SM content in a data storage unit (e.g., a data storage unit of the content system 306), and can then receive the SM content by selecting and retrieving it from the data storage unit.

[0064] The content system 306 can store SM content in various ways. In one example, the content system 306 can receive SM content and can store the received SM content in a database maintained in a data storage unit of the content system 306 (hereinafter the “SM database”). The content system 306 can store each of one or more elements of the received SM content into a respective one of one or more fields of a record for the SM content, within the SM database. For example, in the case where the SM content includes two elements, namely a first element that is a profile image corresponding to a publisher of the SM content, and a second element that is text published by the publisher in connection with the SM content, the content system 306 can store the first element in a first field of the record, and can store the second element in a second field of the record. As noted above, SM content can include various different types of elements and as such, various other examples of storing elements in respective fields are possible.

[0065] After the content system 306 stores the SM content, the content system 306 can select and retrieve the stored SM content. In one example, the content system 306 can do this by retrieving one or more elements stored in one or more fields of a record for the SM content. The content system 306 can then combine the retrieved elements together (or a portion thereof) to form SM content, such as the originally received SM content.

[0066] In some instances, the content system 306 can select and modify SM content. The content system 306 can select SM content in various ways. For example, the content system 306 can select SM content responsive to the content system 306 performing an action in connection with the SM content (e.g., responsive to the content system 306 receiving or storing the SM content). In another example, the content system 306 can select SM content based on the SM content being associated with a particular characteristic (e.g., based on the SM content being scheduled to be integrated into a video program). In another example, the content system 306 can, periodically or based on a schedule, select SM content for routine processing. As yet another example, the content system 306 can select SM content based on input received from a user via a user interface.

[0067] The content system 306 can then modify the selected SM content by identifying a first element of the selected SM content based on the first element being associated with a particular characteristic, and then modifying the selected SM content by modifying the identified first element of the selected SM content.

[0068] The character generator 308 can perform various acts and/or functions, perhaps based on input received via a user interface. For example, the character generator 308 can receive media content and can use a character generator template and received media content to generate and/or output video content that includes the received media content. The content system 306 can receive media content in various ways. In one example, the content system 306 can receive media content from another entity. For example, the content system 306 can receive video content (e.g., video content originally captured by the end-user device 304) from the content system 306. In another example, the character generator 308 can receive SM content from the content system 306. In another example, the character generator 308 can receive media content by selecting and retrieving it from a data storage unit (e.g., a data storage unit of the content system 306).

[0069] The character generator template specifies the manner in which the character generator 308 uses the received media content to generate and/or output the video content. The character generator 308 can create and/or modify a character generator template. Further, the character generator 308 can store, select, and/or retrieve a character generator template. As such, the character generator 308 can store a character generator template in a data storage unit (e.g., a data storage unit of the character generator 308), and can then receive the character generator template by retrieving it from the data storage unit.

[0070] The character generator template can specify how the character generator 308 is to receive media content. In
In one example, the character generator 308 can use an ordered set of media content items to generate video content that includes the media content items in the specified order. This type of generated video content is sometimes referred to in the industry as a “ticker.” The media content items can include various types of content, such as text and/or images. The ordered set of media content items can be stored in various forms, such as in the form of an Extensible Markup Language (XML) file.

After the character generator 308 generates and/or outputs video content, the character generator 308 can transmit the video content to another entity, such as the DVE system 310, and/or can store the video content in a data storage unit (e.g., a data storage unit of the character generator 308).

As such, in one example, the character generator 308 can receive media content, can use the media content to generate and/or output video content that includes the media content, and can transmit the video content to the DVE system 310.

As noted above, the character generator template specifies the manner in which the character generator 308 uses the received media content to generate and/or output video content. In one example, the media content can be SM content. As such, the character generator template can specify the manner in which the character generator 308 uses SM content to generate and/or output video content.

A character generator template can include one or more placeholders, each of which the character generator 308 can replace with a respective element of SM content. By replacing the placeholders in this way, the character generator 308 can generate video content that includes the SM content. The placeholders can be positioned, arranged, and/or scheduled in various ways. Further, the template can be configured to allow for elements of SM content to be incorporated by the character generator 308 in pre-defined ways (e.g., with pre-defined animations).

As noted above, the content system 306 can store each of one or more elements of SM content into a respective one of one or more fields of a record for the SM content. Further, a template can include one or more placeholders. To specify how the character generator 308 can use the template to generate video content that includes the SM content, the character generator 308 can establish a link between each of the one or more fields of the record and a respective one of one or more placeholders of the template.

As such, in the case where a record for SM content includes a first element stored in a first field of the record and further includes a second element stored in a second field of the record, and where a template includes two placeholders, namely a first placeholder and a second placeholder, the character generator 308 can establish a first link between the first field of the record and the first placeholder, and can further establish a second link between the second field of the record and the second placeholder. The character generator 308 can represent the established link in various ways. For example, the character generator 308 can maintain a table that (i) identifies each placeholder of the template, and (ii) for each placeholder, identifies a corresponding field (e.g., with a pointer to a memory location of the field) with which the placeholder is linked. Conversely, the character generator 308 can maintain a table that (i) identifies each field of the record, and (ii) for each field, identifies a corresponding placeholder of the template (e.g., with a pointer to a memory location of the placeholder) with which the field is linked.

The character generator 308 can then use the record, the template, and the established links to generate video content that includes the SM content. In particular, based on the first link, the character generator 308 can replace the first placeholder with the element stored in the first field of the record (i.e., the first element of the SM content). Likewise, based on the second link, the character generator 308 can replace the second placeholder with the element stored in the second field of the record (i.e., the second element of the SM content). By replacing placeholders with elements of SM content in this way, the character generator 308 can generate video content that includes the SM content.

For simplicity, the example provided above included only two elements of SM content, two placeholders, and two established links. However, other examples are possible, such as ones that involve a fewer of greater number of fields of a record, placeholders of a template, and/or established links between the fields and the placeholders.

After the character generator 308 establishes one or more links between one or more fields of a record and one or more placeholders of a template, the character generator 308 can generate a schedule object that identifies the record, the template, and the established one or more links. The schedule object can adhere to one or more protocols. For example, the schedule object can adhere to the Media Object Server Communication Protocol (“MOS Protocol”), and thus can be considered a MOS object. The schedule object can be used for scheduling-related and sequencing-related purposes as described below in connection with the discussion of the scheduling system 312 and the sequencing system 314.

The DVE system 310 can use a DVE template to generate and/or output video content. This is sometimes referred to in the industry as the DVE system “executing a DVE.” In some instances, the DVE system 310 can execute multiple DVEs in serial or overlapping fashion.

The DVE template specifies the manner in which the DVE system 310 generates and/or outputs video content. The DVE system 310 can create and/or modify a DVE template, perhaps based on input received from a user via a user interface. Further, the DVE system 310 can store and/or retrieve a DVE template, perhaps based on input received from a user via a user interface. As such, the DVE system 310 can store a DVE template in a data storage unit (e.g., a data storage unit of the DVE system 310), and can then receive the DVE template by selecting and retrieving it from the data storage unit.

In some instances, the DVE system 310 can use the DVE template and media content to generate and/or output video content that includes the media content. The DVE system 310 can receive content in various ways. For
example, the DVE system 310 can do so by receiving it from another entity, such as the video source 302 and/or the character generator 308. In another example, the DVE system 310 can do so by selecting and retrieving it from a data storage unit (e.g., a data storage unit of the DVE system 310).

[0084] The DVE template can specify how the DVE system 310 is to receive media content. In one example, the DVE template can do so by specifying that the DVE system 310 is to receive media content on a particular input of the DVE system 310 (e.g., an input that maps to a particular entity, such as the video source 302 or the character generator 308). In another example, the DVE template can do so by specifying that the DVE system 310 is to receive content by retrieving it from a particular location of a particular data storage unit (e.g., a data storage unit of the DVE system 310).

[0085] A DVE template can be configured in various ways, which can allow the DVE system 310 to execute various types of DVEs. In one example, a DVE template can specify that the DVE system 310 is to receive video content from the video source 302 and other media content (e.g., local weather content) from a data storage unit of the DVE system, and is to overlay the other media content on the video content, thereby generating a modified version of the video content. As such, in one example, the DVE system 310 can generate video content by modifying video content.

[0086] FIGS. 4A and 4B help illustrate this concept of overlaying other content on video content. FIG. 4A is a simplified depiction of an example frame 400 of video content. Frame 400 includes content 402, but does not include other content overlaid on content 402. For comparison, FIG. 4B is a simplified depiction of another example frame 450 of video content. Frame 450 includes content 452 and other content 454 overlaid on content 452.

[0087] In another example, a DVE template can specify that the DVE system 310 is to receive first video content from the video source 302 and second video content from the character generator 308, and is to overlay the second video content on the first video content, thereby generating a modified version of the first video content.

[0088] In another example, a DVE template can specify that the DVE system 310 is to receive first video content from the video source 302 and second video content from the character generator 308, and is to scale-down and re-position the first video content and the second video content, each in a respective one of two windows positioned side-by-side. As such, the DVE system 310 can generate video content by scaling and/or re-positioning video content.

[0089] After the DVE system 310 generates and/or outputs the video content, the DVE system 310 can transmit the video content to another entity, such as the VBS 204, or can store the video content in a data storage unit (e.g., a data storage unit of the DVE system 310).

[0090] As such, in one example, the DVE system 310 can receive first video content including video content, can use the first video content to generate and/or output second video content that includes the video content. This is an example way in which the VBS 202 can integrate video content into a video program.

[0091] The VBS 202 can also integrate video content into a video program in other ways. For example, in the case where the video source 302 is a video camera, the content system 306 can include a display device that is located within a field of the view of the video camera while the video camera records video content that serves as or is made part of the video program. In one example, the display device can be touch-enabled, which can allow a user (e.g., a news anchor) to interact with the video content. To facilitate the user’s interaction with the video content, the display device and/or other components of the content system 306 can be programmed with instructions that cause particular actions in response to particular touch commands.

[0092] The scheduling system 312 can perform various acts and/or functions related to the scheduling of video content production. For example, the scheduling system 312 can create and/or modify a program schedule of a video program, perhaps based on input received from a user via a user interface. Further, the scheduling system 312 can store and/or retrieve a program schedule, perhaps based on input received from a user via a user interface. As such, the scheduling system 312 can store a program schedule in a data storage unit (e.g., a data storage unit of the scheduling system 312), and can then receive the program schedule by selecting and retrieving it from the data storage unit. The scheduling system 312 can also transmit a program schedule to another entity, such as the sequencing system 314.

[0093] The sequencing system 314 can process records in the program schedule. This can cause the sequencing system 314 to control one or more other components of the VBS 202 to facilitate the VBS 202 generating and/or outputting video content, which can serve as or be part of a video program. For example, the sequencing system 314 can control the video source 302, the content system 306, the character generator 308, and/or the DVE system 310 to perform the various acts and/or functions described in this disclosure.

[0094] The sequencing system 314 can receive a program schedule in various ways. For example, the sequencing system 314 can do so by receiving it from another entity, such as the scheduling system 312. In another example, the character generator 308 can do so by selecting and retrieving it from a data storage unit (e.g., a data storage unit of the scheduling system 312).

[0095] A program schedule (sometimes referred to in the industry as a “rundown”) serves as a schedule or outline of a video program and can include multiple records. A video program can be conceptually divided into multiple logically-separated portions (sometimes referred to in the industry as “stories”). As such, each portion of the video program can be represented by a separate record of the program schedule. In some cases, each record can also include one or more sub-records. Each record (including a sub-record) can include various types of data.

[0096] FIG. 5 is a simplified diagram of an example program schedule 500. The program schedule 500 includes ten records represented as ten ordered rows. Each record corresponds to a respective portion of a video program, except for one which corresponds to a commercial break. For each portion, the respective record specifies at least one data item that corresponds to that portion of the video program. In particular, each record specifies at least one of a story title, a video content item identifier, a duration, and a script. The script can include various instructions, such as instructions for the video source 302 to play out video content, instructions for the character generator 308 to generate video content based on a schedule object, and instructions for the DVE system 310 to execute a particular DVE that overlays video content on other video content.
A video content item can consist of logically-related video content. For example, a video content item can be a commercial. As another example, a video content item can be a portion of a television program that is scheduled between two commercial breaks. This is sometimes referred to in the industry as a “program segment.”

As shown in FIG. 5, the first record specifies a story title of "STORY A", a video content identifier of "VCI ID A", a duration of 00:02:00:00 (in hours:minutes:seconds::frames format), and a script of "SCRIPT A". In this example, "SCRIPT A" includes instructions for the video source 302 to playout a first video content item identified by the identifier "VCI A" for two minutes, instructions for the character generator 308 to use a particular schedule object to generate a second video content item that includes SM content, and instructions for the DVE system 310 to execute a particular DVE, which causes the DVE system 310 to overlay the generated second video content item on the generated first video content item to generate a third video content item.

The program schedule 500 has been greatly simplified for the purposes of illustrating certain features. In practice, a program schedule is likely to include significantly more data.

In some instances, the sequencing system 314 can process a next record in the program schedule based on a trigger event. In one example, the trigger event can be the sequencing system 314 completing one or more actions related to a current record in the program schedule. In another example, the trigger event can be the sequencing system 314 receiving input from a user via a user interface.

As noted above, after character generator 308 establishes one or more links between one or more fields of a record and one or more placeholders of a character generator template, the character generator 308 can generate a schedule object that identifies the record, the template, and the established one or more links. The generated schedule object can be used for various purposes. For example, it can allow the scheduling system 308 to schedule an instance where the character generator 308 uses the identified record, the identified template, and the identified one or more links to integrate SM content into a video program.

In one example, the scheduling system 312 can modify a program schedule by inserting a generated schedule object into the program schedule. As such, the scheduling system 312 can modify a program schedule by inserting a generated schedule object into the program schedule. In one example, the scheduling system 312 can insert the generated schedule object into the program schedule based on input received from a user via a user interface. In another particular example, the scheduling system 312 can display, via a graphical user interface, a visual representation (e.g., an icon) of a schedule object, and can allow a user to click on the visual representation, and drag-and-drop the visual representation into a region of a visual representation of a program schedule. In one example, the scheduling system 312 can insert the schedule object in a particular position of the program schedule based on the region where the visual representation was dropped. As such, based on the user dropping the visual representation in the seventh record, the scheduling system 312 can insert the generated schedule object into "SCRIPT F", for instance.

After the scheduling system 312 modifies the program schedule, the sequencing system 314 can access the modified program schedule, can select the inserted schedule object, and can use the inserted schedule object to facilitate generating video content that includes the received SM content as described above.

Referring back to FIG. 2, the VBS 204 can receive video content from the VPS 202, which in turn can transmit the video content to the end-user device 206 for presentation of the video content to an end user. In practice, the VBS 204 can transmit video content to a large number of end-user devices for presentation of the video content to a large number of end users. The VBS 204 can transmit video content to the end-user device 206 in various ways. For example, VBS 204 can transmit video content to the end-user device 206 over-the-air or via a packet-based network such as the Internet. The end-user device 206 can receive video content from the VBS 204, and can present the video content to an end user via a user interface.

As noted above, the end-user device 304 can capture video content and, at or about the same time that the video content is being captured (i.e., without significant delay), can transmit the captured video content to another entity, such as the content system 306. In some cases, some or all of the other operations described in this disclosure can also be performed at or about that same time, which can allow the VBS 204 to transmit the captured video content to the end-user device 206 as a live transmission.

Although some of the acts and/or functions described in this disclosure have been described in the context of the video system 200 and as video-related concepts (e.g., generating a video program), the acts and/or functions can also be applied in the context of an audio system and as audio-related concepts (e.g., generating an audio program). More generally, the acts and/or functions described in this disclosure can be applied in the context of a media system and used as media-related concepts (e.g., generating a media program).

FIG. 6 is a flow chart illustrating an example method 600.

At block 602, the method 600 can include receiving, by a computing system, SM content, wherein the SM content includes one or more elements. In one example, the computing system can be the VBS 202. In another example, the computing system can be a computing system that includes the VPS 202 and the VBS 204.

At block 604, the method 600 can include storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record.

At block 606, the method 600 can include establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template.

At block 608, the method 600 can include generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links.

At block 610, the method 600 can include modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

IV. Example Variations

Although some of the acts and/or functions described in this disclosure have been described as being performed by a particular entity, the acts and/or functions
can be performed by any entity, such as those entities described in this disclosure. Further, although the acts and/or functions have been recited in a particular order, the acts and/or functions need not be performed in the order recited. However, in some instances, it can be desired to perform the acts and/or functions in the order recited. Further, each of the acts and/or functions can be performed responsive to one or more of the other acts and/or functions. Also, not all of the acts and/or functions need to be performed to achieve one or more of the benefits provided by this disclosure, and therefore not all of the acts and/or functions are required.

[0114] Although certain variations have been discussed in connection with one or more example of this disclosure, these variations can also be applied to all of the other examples of this disclosure as well.

[0115] Although select examples of this disclosure have been described, alterations and permutations of these examples will be apparent to those of ordinary skill in the art. Other changes, substitutions, and/or alterations are also possible without departing from the invention in its broader aspects as set forth in the following claims.

1. A method comprising:
   receiving, by a computing system, social media (SM) content, wherein the SM content includes one or more elements;
   storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record;
   establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template;
   generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and
   modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

2. The method of claim 1, wherein the computing system is a video production system.

3. The method of claim 1, wherein the template is a character generator template.

4. The method of claim 1, wherein inserting the generated schedule object into the program schedule comprises inserting the generated schedule object into the program schedule based on input received via a graphical user interface, where in the input represents a drag-and-drop operation.

5. The method of claim 1, further comprising:
   accessing, by the computing system, the modified program schedule;
   selecting, by the computing system, the inserted schedule object from the accessed program schedule; and
   using, by the computing system, the selected schedule object to facilitate generating video content that includes the received SM content.

6. The method of claim 5, wherein using the selected schedule object to facilitate generating video content that includes the received SM content comprises:
   replacing each of the one or more placeholders of the template with the element in the respectively linked field of the record.

7. The method of claim 1, wherein the computing system is a first computing system, the method further comprising:
   transmitting, by the first computing system, the generated video content to a second computing system for presentation of the generated video content on the second computing system.

8. A non-transitory computer-readable medium having stored thereon program instructions that upon execution by a processor, cause performance of a set of acts comprising: receiving, by a computing system, social media (SM) content, wherein the SM content includes one or more elements;
   storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record;
   establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template;
   generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and
   modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

9. The non-transitory computer-readable medium of claim 8, wherein the computing system is a video production system.

10. The non-transitory computer-readable medium of claim 8, wherein the template is a character generator template.

11. The non-transitory computer-readable medium of claim 8, wherein inserting the generated schedule object into the program schedule comprises inserting the generated schedule object into the program schedule based on input received via a graphical user interface, where in the input represents a drag-and-drop operation.

12. The non-transitory computer-readable medium of claim 8, the set of acts further comprising:
   accessing, by the computing system, the modified program schedule;
   selecting, by the computing system, the inserted schedule object from the accessed program schedule; and
   using, by the computing system, the selected schedule object to facilitate generating video content that includes the received SM content.

13. The non-transitory computer-readable medium of claim 12, wherein using the selected schedule object to facilitate generating video content that includes the received SM content comprises:
   replacing each of the one or more placeholders of the template with the element in the respectively linked field of the record.

14. The non-transitory computer-readable medium of claim 8, wherein the computing system is a first computing system, the set of acts further comprising:
   transmitting, by the first computing system, the generated video content to a second computing system for presentation of the generated video content on the second computing system.

15. A computing system configured for performing a set of acts comprising:
   receiving, by the computing system, social media (SM) content, wherein the SM content includes one or more elements;
storing, by the computing system, each of the one or more elements of the received SM content into a respective one of one or more fields of a record; establishing, by the computing system, a link between each of the one or more fields of the record and a respective one of one or more placeholders of a template; generating, by the computing system, a schedule object that identifies the record, the template, and the established one or more links; and modifying, by the computing system, a program schedule for a media program by inserting the generated schedule object into the program schedule.

16. The computing system of claim 15, wherein the computing system is a video production system.

17. The computing system of claim 15, wherein the template is a character generator template.

18. The computing system of claim 15, wherein inserting the generated schedule object into the program schedule comprises inserting the generated schedule object into the program schedule based on input received via a graphical user interface, where in the input represents a drag-and-drop operation.

19. The computing system of claim 15, the set of acts further comprising:

accessing, by the computing system, the modified program schedule;
selecting, by the computing system, the inserted schedule object from the accessed program schedule; and
using, by the computing system, the selected schedule object to facilitate generating video content that includes the received SM content.

20. The computing system of claim 19, wherein using the selected schedule object to facilitate generating video content that includes the received SM content comprises:

replacing each of the one or more placeholders of the template with the element in the respectively linked field of the record.